FINANCIAL ALIGNMENT INITIATIVE

South Carolina Healthy Connections Prime: Third Evaluation Report

December 2023

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FINANCIAL ALIGNMENT INITIATIVE
SOUTH CAROLINA HEALTHY CONNECTIONS PRIME: THIRD EVALUATION REPORT

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Glossary of Acronyms

ACSC	Ambulatory care sensitive condition
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CMS	Centers for Medicare & Medicaid Services
CMT	Contract Management Team
CTM	Complaint Tracking Module
DinD	Difference-in-differences
DMH	Department of Mental Health
D-SNP	Dual Eligible Special Needs Plan
ED	Emergency department
ENE	Eligible but never enrolled
FAI	Financial Alignment Initiative
FFS	Fee-for-service
HCBS	Home and community-based services
HCC	Hierarchical Condition Category
HEDIS	Healthcare Effectiveness Data and Information Set
IRE	Medicare Independent Review Entity
ITT	Intent-to-treat
LTSS	Long-term services and supports
MA	Medicare Advantage
MARx	Medicare Advantage Prescription Drug System
MDS	Minimum Data Set
MLR	Medical loss ratio
MMCO	Medicare-Medicaid Coordination Office
MMP	Medicare-Medicaid Plan

NF	Nursing facility
PHE	Public Health Emergency
PMPM	Per member per month
PS	Propensity score
SCDHHS	South Carolina Department of Health and Human Services
SDRS	State Data Reporting System
SNF	Skilled nursing facility
SPMI	Serious and persistent mental illness

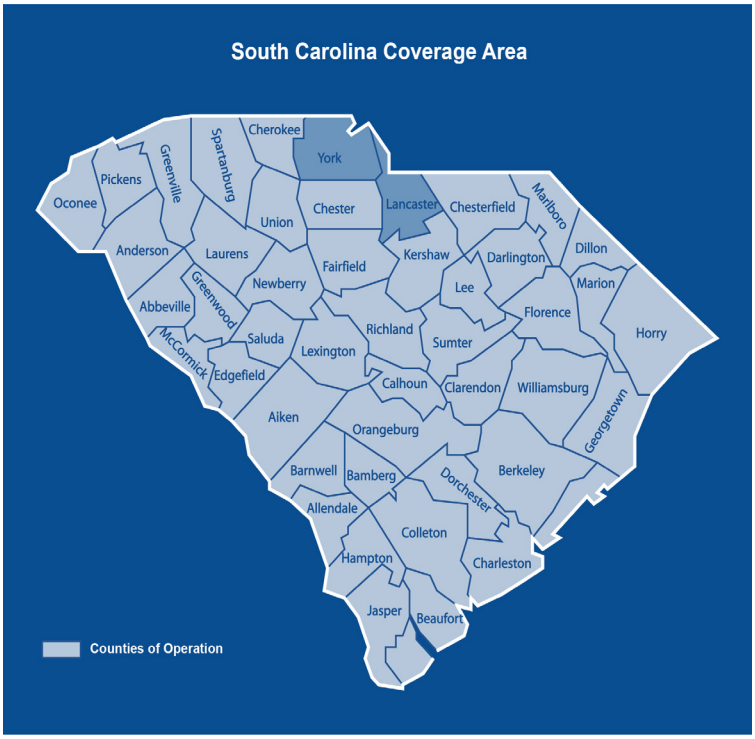
Executive Summary

The Medicare-Medicaid Coordination Office and the Innovation Center at the Centers for Medicare & Medicaid Services (CMS) created the Medicare-Medicaid Financial Alignment Initiative (FAI) to test, in partnerships with States, integrated care models for dually eligible enrollees.

The South Carolina Healthy Connections Prime demonstration began in February 2015. South Carolina and CMS competitively selected four health plans to operate Medicare-Medicaid Plans (MMPs), with one leaving the demonstration in August 2016.

Healthy Connections Prime launched in 2015 and is only one of two demonstrations under the FAI to focus eligibility on dually eligible beneficiaries 65 and over. After implementation, most modifications to the demonstration design were minor, with the exception of changes made to the demonstration's enrollment and care coordination approaches. Through passive enrollment changes and geographic coverage expansion, enrollment reached 15,055, or 59 percent of eligible beneficiaries, in December 2021. In the beginning of the demonstration, Healthy Connections Prime experienced challenges in ensuring enrollee access to care and specialty services. In 2021 one MMP reported that the availability of certain specialty providers in rural areas of the State continued to be a challenge it monitored.

Despite the challenges, most enrollees expressed high satisfaction with their MMP and the care coordination provided. The demonstration was also associated with an overall favorable impact on utilization and quality measures relating to inpatient and SNF admissions, long-stay NF use, 30-day readmissions and ambulatory care sensitive condition hospitalizations. However, increased Medicare costs were observed among the demonstration-eligible group, relative to the comparison group.



NOTE: York and Lancaster Counties were new as of January 2022.

The South Carolina Department of Health and Human Services (SCDHHS) administers Healthy Connections Prime. MMPs receive capitated payments from CMS and the State to finance all Medicare and Medicaid services. MMPs also provide care coordination, a new palliative care benefit, and flexible benefits that vary by plan. Adults over the age of 65 and living in the community are eligible to participate in the demonstration. Participants over the age of 65 in three home and community-based services (HCBS) waiver groups—Community Choices, HIV/AIDS, and Mechanical Ventilation waivers—are also eligible to participate. Since January 1, 2022, the demonstration has been statewide.

CMS contracted with RTI International to monitor demonstration implementation and to evaluate its impact on beneficiary experience, quality, utilization, and cost. The evaluation includes individual State-specific reports like this one. This third evaluation report for the South Carolina Healthy Connections Prime demonstration describes its implementation and includes an analysis of the demonstration's impacts on select outcomes. We include qualitative evaluation information for calendar year 2021, with key updates through early 2022,[1] and quantitative results for February 2015 through December 2020 (demonstration years 1 through 5). Demonstration year 1 includes February 2015 through December 2016. Subsequent demonstration years include full single calendar years.

As specified in the three-way contract, the demonstration excluded those who were enrolled in Medicaid via the medically needy eligibility pathway and those who were enrolled in Medicaid 1915(c) waivers (except for the three HCBS waiver groups mentioned above that are allowed in the demonstration). In this analysis, we apply the medically needy exclusion to the entire sample and the waiver exclusion to the demonstration group.[2] ***Section 5, Demonstration Impact on Service Utilization and Quality of Care*** and ***Section 6, Demonstration Impact on Cost Savings*** describe in more detail the impact of these exclusions on the analytic sample. Previous evaluation reports did not apply these exclusions due to the lack of reliable Medicaid eligibility data for all years. Thus, the results reported here are different somewhat, and considered more accurate, than those previously reported.

Highlights

Integration of Medicare and Medicaid	A 2021 reorganization within SCDHHS established a new integrated care division and put the Healthy Connections Prime staff and D-SNP staff members under the same leadership.
	The MMPs successfully met network adequacy requirements to expand operations into four new counties, making the demonstration statewide as of January 2022. In 2021 one MMP reported that the availability of certain specialty providers in rural areas of the State continued to be a challenge it monitored.

[1] Data sources for the 2022 updates include quarterly calls with the State and CMS; other monitoring of demonstration activities through, for example, demonstration websites; and individual beneficiary interviews. Although the individual interviews were conducted outside the reporting period, because this is the last RTI evaluation report for this demonstration, the data were included to highlight the beneficiary experience with the demonstration.

[2] We applied Medicaid waiver exclusions to the demonstration group only because 1915(c) waiver programs in the comparison group States do not necessarily target a similar population. Applying these exclusions to the demonstration group only avoids additional biases caused by removing Medicaid waiver enrollees from the comparison group as well.

Eligibility and Enrollment	During the reporting period, after considering extending the demonstration's eligible population to include those under age 65 (21–64), the State instead decided to focus on its managed long-term services and supports strategy.
	Enrollment steadily increased over the course of the demonstration, from 1,808 in December 2015 to 15,055 in December 2021. During 2021, however, the number of beneficiaries enrolled slightly declined over time, starting at a high of 16,293 in January 2021.
Care Coordination	In 2021, MMPs continued to find new ways to contact enrollees, including working with providers, such as pharmacies, to get current enrollee contact information.
	A review led by the CMS-State Contract Management Team of 15 individualized care plans in the spring of 2021 identified promising practices and actionable areas for improvement for each of the MMPs.
	Despite lower care coordinator turnover rates between 2017 through 2021 than in previous demonstration years (2015–2016), the rate slightly increased during the Public Health Emergency (PHE) (2020 and 2021). Two MMPs reported facing staffing challenges due to competition from hospital systems that offered financial incentives during this time.
Stakeholder Engagement	The State shared information with stakeholders such as advocates and providers through biannual stakeholder updates. Beneficiary advocacy organization SC Thrive, and the ombudsman, the Prime Advocate led targeted outreach to new stakeholders.
	Although MMPs initially hesitated to shift to virtual enrollee advisory committee meetings, in 2021 the MMPs reported that the shift increased enrollee engagement.

Financing and Payment	During the reporting period, MMPs said that the Medicare and Medicaid capitated rates were adequate. They were largely satisfied with improvement in monthly reconciliation of the Medicaid portion of the rates.
	The State and MMPs explored the feasibility of submitting Medicaid encounters for analyses, with the potential of shifting to an encounter-based Medicaid rate-setting methodology. State officials determined ultimately that this was not feasible.
Quality of Care	In response to access to care challenges stemming from the PHE, MMPs focused on efforts to improve enrollee access to preventive services such as breast cancer screenings and flu shots.
	Due to the PHE, all MMPs were eligible for the quality withhold adjustment for an extreme and uncontrollable circumstance in 2020, and therefore received 100 percent of the withheld amount, irrespective of measure performance. Assessment of quality withhold performance measures resumed in 2021. Two MMPs received 50 percent of quality withhold payments in 2021, and one MMP received 100 percent.
Beneficiary Experience	CAHPS survey results and individual beneficiary interview findings continued to indicate enrollees remained satisfied with their Healthy Connections Prime plan.
Demonstration Impact on Service Utilization and Quality of Care	As shown in ***Table ES-1,*** over the course of the first 5 demonstration years, the probabilities of inpatient admission, skilled nursing facility (SNF) admission, long-stay nursing facility (NF) use, ambulatory care sensitive condition (ACSC) admissions (overall and chronic), and the number of all-cause 30-day readmissions all decreased relative to the comparison group.

Demonstration Impact on Service Utilization and Quality of Care (continued)	The demonstration had a more favorable differential effect on the probability of inpatient admission among beneficiaries with long-term services and supports (LTSS) use compared to those without LTSS use (***Table ES-1***). While the probability of inpatient admission decreased among all eligible beneficiaries during the demonstration period relative to the comparison group, the decrease was greater among LTSS users.
	Table ES-1 shows that on some outcomes the demonstration impacted beneficiaries with serious and persistent mental illness (SPMI) differently than those without SPMI. The demonstration was associated with a decrease in the monthly probability of any inpatient admission among those with and without SPMI, but the decrease was greater among those with SPMI. At the same time, those with an SPMI saw a greater increase in the monthly probability of any emergency department use and a greater decrease in the number of physician evaluation and management visits, relative to the non-SPMI population.
Demonstration Impact on Cost Savings	As summarized in ***Table ES-2***, the demonstration was associated with an increase in Medicare Parts A and B costs over the first 5 demonstration years relative to the comparison group.[3]

Table ES-1 summarizes the cumulative effects of the South Carolina demonstration on service utilization and quality of care outcomes over demonstration years 1-5 (demonstration start through 2020), relative to the comparison group. It also shows the difference in the demonstration effect for LTSS users relative to non-LTSS users, and for beneficiaries with SPMI relative to those without SPMI.

[3] Although the Second Evaluation Report included an impact analysis of Medicaid costs, this was not true of this report, due to limitations of available data. See ***Appendix F, Section F.5*** for more information.

Table ES-1
Summary of South Carolina cumulative demonstration effects on service utilization and quality of care measures for demonstration period, February 1, 2015–December 31, 2020

Measure	Demonstration effect (all eligible beneficiaries)	Difference in demonstration effect (LTSS versus non-LTSS)	Difference in demonstration effect (SPMI versus non-SPMI)
Monthly probability of any inpatient admission	Decrease[G]	Decrease[G]	Decrease[G]
Monthly probability of any ambulatory care sensitive condition (ACSC) admission, overall	Decrease[G]	NS	NS
Monthly probability of any ACSC admission, chronic	Decrease[G]	NS	NS
Number of all-cause 30-day readmissions per 1,000 discharges	Decrease[G]	NS	NS
Monthly probability of any emergency department (ED) visits	NS	NS	Increase[R]
Monthly number of preventable ED visits per 1,000 beneficiaries	NS	NS	NS
Probability of 30-day follow-up after mental health discharge	NS	N/A	N/A
Monthly probability of any skilled nursing facility (SNF) admission	Decrease[G]	NS	NS
Annual probability of any long-stay nursing facility use	Decrease[G]	N/A	N/A
Monthly number of physician evaluation and management visits per 1,000 beneficiaries	NS	NS	Decrease[R]

LTSS = long-term services and supports; N/A = not applicable; NS = not statistically significant; SPMI = serious and persistent mental illness.

NOTES: Statistical significance is defined at the α = 0.05 level. For additional details on results, see ***Tables E-1, E-2***, and ***E-3*** in ***Appendix E***. Green and red color-coded shading indicates where the direction of the difference-in-differences (DinD) estimate was favorable or unfavorable; green indicates favorable, and red indicates unfavorable. To ensure accessibility for text readers and individuals with sight disabilities, cells shaded green or red receive, respectively, a superscript "G" or "R". Long-stay nursing facility use means stays lasting 101 days or more in a year. In the column for "Demonstration effect (all eligible beneficiaries)," an *Increase* or *Decrease* refers to the *relative* change in an outcome for the demonstration group compared to the comparison group, based on the DinD regression estimate of the demonstration effect during the demonstration period. The results shown in the two columns for "Difference in demonstration effect (LTSS versus non-LTSS)" and "Difference in demonstration effect (SPMI versus non-SPMI)" compare two separate DinD estimates of the demonstration effect—one for the special population of interest (e.g., LTSS users) and another for the rest of the eligible population (e.g., non-LTSS users)—and indicate whether the difference between the two effect estimates is statistically significant (regardless of whether there is an overall demonstration effect for the entire eligible population). In these two columns, an *Increase* or *Decrease* measures the *relative* change in an outcome for the special population of interest compared to the rest of the eligible population. For a given outcome, the result shown for the entire eligible population and that separately for the special population (LTSS users or those with SPMI) can be different from each other.

SOURCE: RTI analysis of Medicare fee-for-service claims and encounter data and Minimum Data Set data.

Table ES-2 summarizes the demonstration effects on total Medicare Parts A and B expenditures for all eligible beneficiaries, including both the cumulative effect over the 5-year demonstration period and the annual effect for each demonstration year.

Table ES-2
Summary of South Carolina demonstration effects on total Medicare expenditures among all eligible beneficiaries, February 1, 2015–December 31, 2020

Measure	Measurement period	Demonstration effect
Medicare Parts A and B cost	Cumulative (demonstration years 1–5)	Increase[R]
	Demonstration year 1	Decrease[G]
	Demonstration year 2	NS
	Demonstration year 3	Increase[R]
	Demonstration year 4	Increase[R]
	Demonstration year 5	Increase[R]

NS = not statistically significant.
NOTES: Statistical significance is defined at the α = 0.05 level. For numeric estimates of the demonstration's effect on total Medicare expenditures, see ***Figure 6-1*** in ***Section 6, Demonstration Impact on Cost Savings***. Green and red color-coded shading indicates where the direction of the difference-in-differences (DinD) estimate was favorable or unfavorable; green indicates favorable, and red indicates unfavorable. To ensure accessibility for text readers and individuals with sight disabilities, cells shaded green or red receive, respectively, a superscript "G" or "R". In the column for "Demonstration effect," an *Increase* or *Decrease* refers to the *relative* change in an outcome for the demonstration group compared to the comparison group, based on the DinD regression estimate of the demonstration effect during the specified measurement period.
SOURCE: RTI analysis of Medicare claims.

SECTION 1

Demonstration and Evaluation Overview

1.1 Demonstration Description and Goals

The Medicare-Medicaid Coordination Office (MMCO) and the Innovation Center at the Centers for Medicare & Medicaid Services (CMS) created the Medicare-Medicaid Financial Alignment Initiative (FAI) to test, in partnerships with States, integrated care models for dually eligible enrollees. The goal of the South Carolina demonstration is to develop person-centered care delivery models integrating the full range of medical, behavioral health, and long-term services and supports (LTSS) for Medicare-Medicaid enrollees, with the expectation that integrated delivery models would address the challenges associated with the lack of coordination of Medicare and Medicaid benefits, financing, and incentives.

The demonstration was originally scheduled to end on December 31, 2018. In 2018 it was extended by 2 years, and in 2020 it was extended for an additional 3 years, through December 31, 2023 (South Carolina three-way contract, 2014; amended South Carolina three-way contract, 2018; amended South Carolina three-way contract, 2020).[4] The First Evaluation Report includes extensive background information and early implementation information about the demonstration. The Second Evaluation Report provides implementation updates for mid-2018 through 2020.

1.2 Purpose of this Report

CMS contracted with RTI International to monitor implementation of the demonstrations under the FAI and to evaluate their impact on beneficiary experience, quality, utilization, and cost. In this report we include qualitative evaluation information for calendar year 2021, with relevant updates from early 2022. We refer to this time period as "the reporting period" or "the report period" in the qualitative narrative. We provide updates to previous evaluation reports in key areas, including enrollment, care coordination, beneficiary experience, and stakeholder engagement activities, and discuss the challenges, successes, and emerging issues identified during the reporting period.

We present quantitative analysis results on service utilization, quality of care, and costs for the period spanning February 2015 through December 2020 (the first 5 demonstration years). The difference in timeframes between qualitative and quantitative analyses is due to the longer lag of secondary data used in the quantitative analysis. Demonstration year 1 includes February 2015 through December 2016. Subsequent demonstration years include full single calendar years.

1.3 Data Sources

We used a variety of data sources to prepare this report (see below). See ***Appendix A, Data Sources*** for additional detail.

[4] As of September 2023, the demonstration was extended further, through December 31, 2025.


Data Sources
KEY INFORMANT INTERVIEWS
Site visits
Quarterly monitoring calls with CMS and SCDHHS officials
DEMONSTRATION DATA AND MATERIALS
State Data Reporting System (SDRS) submissions
Demonstration policies, contracts, and other materials
BENEFICIARY SATISFACTION DATA
Individual beneficiary interviews
Medicare Advantage and Prescription Drug Plan Consumer Assessment of Healthcare Providers and Systems (CAHPS)
COMPLAINTS AND APPEALS DATA
MMP data reported to SCDHHS and CMS
Complaint Tracking Module (CTM)
Medicare Independent Review Entity (IRE)
QUALITY DATA
State-specific quality measures
Medicare Healthcare Effectiveness Data and Information Set (HEDIS) measures
SERVICE UTILIZATION DATA
CMS Medicare Beneficiary Summary Files
CMS fee-for-service Medicare claims and encounter data
Nursing Home Minimum Data Set
Medicare enrollment files
Area Health and Resources Files
American Community Survey
COST DATA
CMS Medicare Advantage and Part D Inquiry System (MARx) data
Quality withhold repayments
Medicare Part A claims
Medicare Part B claims
Medicaid Analytic eXtract (MAX) claims
Transformed Medicaid Statistical Information System (T-MSIS) Analytic Files (TAF)

SECTION 2

Demonstration Design and State Context

2.1 Changes in Demonstration Design

Healthy Connections Prime began in February 2015 and between 2015 and 2021 had multiple amendments to the three-way contract over the course of the demonstration. The November 2017 contract amendment aligned demonstration year dates with the start date of the demonstration and included clarifications and updates to better align the demonstration with State and Federal requirements, among other changes and clarifications (CMS, 2017a). As discussed in detail in the Second Evaluation Report, the July 2018 contract amendment extended the demonstration until December 31, 2020 and included several modifications to the demonstration design, such as changes to the demonstration's passive enrollment approach, care coordination model, and adjustments to the savings percentage and reporting and administrative requirements (CMS, 2018).

Implementation Effectiveness: Fidelity

Now that the Financial Alignment Initiative demonstrations have been in place for several years, we have identified several measures as indicators of implementation effectiveness or success, based on the standard implementation science approach, that we believe are useful for this evaluation. The four measures are: (1) fidelity of the demonstration to the original design, (2) demonstration reach, (3) implementation dose, and (4) the State's and CMS' reflections on demonstration effectiveness. We discuss each of these measures in this report, starting with fidelity.

Implementation fidelity can be considered as the degree to which an intervention is implemented as originally designed, even if adaptations to the strategy become necessary. For States, plans, and other stakeholders, including policymakers, it is helpful to reflect on the changes to the demonstration model that were made as implementation unfolded, and the impact of those changes. These findings can inform design or implementation of future models.

As seen in ***Table 2-1***, although overall the Healthy Connections Prime demonstration was implemented with a high degree of fidelity to the original design, it also underwent several key changes.

The July 2020 contract amendment extended the demonstration until December 31, 2023 (CMS, 2020). The most noteworthy updates of this extension were to the financing and payment for Medicare Medicaid Plans (MMPs), such as applying an additional 1 percent quality withhold to the Medicare Parts A and B components that are specifically tied to an additional quality withhold measure, and an annual increase in the medical loss ratio (MLR) targets.

Although the State and MMPs wanted to make significant changes to the demonstration design as part of a future contract amendment, the amendment effective in January 2022 only included minor updates such as administrative changes and language clarifications (CMS, 2022). One of the key anticipated changes, expanding the demonstration's eligible population, was not made because the State wanted more time to develop its managed long-term services and supports strategy. Another potentially desirable change, updating the Medicaid rate methodology, was not implemented because of data challenges (see ***Section 3.5, Financing and Payment***). In 2021 the State said that any substantial changes would likely be postponed through the remainder of the current demonstration period because of the COVID-19 Public Health

Emergency (PHE) and concerns over bandwidth. However, in early 2022, the State and CMS discussed an additional extension beyond December 31, 2023 (see later in this section).[5]

Table 2-1 illustrates the major changes to key South Carolina Healthy Connections Prime demonstration characteristics resulting from these contract amendments from its start in early 2015 to early 2022.

Table 2-1
Key changes to South Carolina Healthy Connections Prime over the course of the demonstration (February 2015 through early 2022)

Key demonstration feature	Changes to the original demonstration design
Timeline	Healthy Connections Prime was initially extended until December 31, 2020. In 2020 it was extended for an additional 3 years, through December 31, 2023.[1]
Eligibility	No changes.
Geography/ Number of participating MMPs	SCDHHS and CMS initially contracted with four plans. One plan withdrew from the demonstration effective August 31, 2016. Healthy Connections Prime increased its geographic coverage area over time and was statewide by January 2022.
Services/Carve-outs	No changes specific to the demonstration.
Payment structure	An additional 1 percent quality withhold was applied to the Medicare Parts A and B components that are specifically tied to an additional quality withhold measure. Medical loss ratio (MLR) targets were increased from 85 to 86 percent during demonstration years 6 and 7.
Other changes	SCDHHS and MMPs continued to modify and refine elements of the demonstration. The most significant modifications focused on the demonstration's passive enrollment approach, care coordination model, and reporting and administrative requirements.

CMS = Centers for Medicare & Medicaid Services; MMP = Medicare-Medicaid Plan SCDHHS = South Carolina Department of Health and Human Services.
[1] As of September 2023, the demonstration was extended further, through December 31, 2025.

2.2 Overview of State Context

2.2.1 HCBS Waivers

As described in the Second Evaluation Report, South Carolina operates nine HCBS waivers that provide services to individuals with disabilities or complex care needs. Beneficiaries over age 65 participating in three of the nine waivers—the HIV/AIDS, Mechanical Ventilation Dependent, and Community Choices HCBS waivers—remained eligible to participate in the South Carolina demonstration during the reporting period (MOU, 2013).

[5] As of September 2023, the demonstration was extended further, through December 31, 2025.

2.2.2 Data System Updates

The State said in 2021 that it was implementing a platform change to the data system which converts enrollment transactions between CMS and SCDHHS' systems. This upgrade was needed for security reasons because an outdated platform was no longer supported. The platform conversion took place in early 2022. The State reported that several issues experienced with the previous platform, including those related to connectivity, reporting, and general file processing, were resolved. The State also said that the updated system gives them more flexibility with pulling and analyzing enrollment data from CMS.

2.2.3 Managed Care

In 2021, a reorganization of SCDHHS established a new integrated managed care division within the Managed Care Bureau. The new division put SCDHHS' Healthy Connections Prime staff and D-SNP staff members under the same leadership. A Healthy Connections Prime team member stepped into the role of director of the new division. The State expected the restructuring to better align Healthy Connections Prime within the agency's long-term strategy for managed care.

2.2.4 Future Demonstration Changes

In early 2022, the State and CMS said they were considering an additional extension beyond December 31, 2023, because an extension would provide the State with more time to transition MMPs to the next phase of Healthy Connections Prime. CMS and the State noted at the time the State's desire to move in the direction of a D-SNP model serving as the primary platform for integrating care for dually eligible beneficiaries, following the end of the demonstration. In late 2022, the State submitted a draft transition plan to CMS stating its intention to transition Healthy Connections Prime to a Highly Integrated Dual Eligible Special Needs Plan (HIDE-SNP) platform at the end of 2025. [6]

[6] In 2022, as part of the contract year 2023 Medicare Advantage and Part D rulemaking process, FAI capitated model states were given an opportunity to extend their demonstrations (no later than December 31, 2025) in order to convert their MMPs into integrated Dual Eligible Special Needs Plans (D-SNPs), contingent upon submitting to CMS a transition plan by October 1, 2022. As of September 2023, the South Carolina demonstration had received approval of its transition plan and the demonstration was extended further, through December 31, 2025.

SECTION 3

Update on Demonstration Implementation

In this section, we provide updates on important aspects of demonstration implementation that have occurred since the Second Evaluation Report. This includes updates on integration efforts, enrollment, care coordination, stakeholder engagement, financing and payment, and quality management strategies.

3.1 Integration of Medicare and Medicaid

A 2021 reorganization within SCDHHS established a new integrated care division and put the Healthy Connections Prime staff and D-SNP staff members under the same leadership.

The MMPs successfully met network adequacy requirements to expand operations into new counties, making the demonstration statewide as of January 2022. In 2021 one MMP reported that the availability of certain specialty providers in rural areas of the State continued to be a challenge it monitored.

In this section we provide updates on demonstration integration structures, including joint management of the demonstration and the integration of service delivery.

3.1.1 Joint Management of the Demonstration

Joint management of the demonstration by CMS and the State, through the contract management team (CMT), continued to be a key component of the demonstration. The CMT continued to individually meet with each MMP for monthly plan-specific calls, and with all the MMPs for monthly State-led operational calls. In 2021, topics addressed during the plan-specific or operational calls included enrollee COVID-19 vaccination rates, MMP staff turnover, unable to reach rates, and results from a care plan analysis.

CMS, the State, and MMPs held quarterly HCBS interaction calls throughout 2021. As described in the Second Evaluation Report, the purpose of the calls was originally to discuss topics specifically pertaining to HCBS provider service experiences, waiver case manager interactions, or areas for further research, such as hospice versus personal care benefits interactions. The State indicated, however, that these calls shifted over time to become more of an opportunity to provide updates, or for the MMPs to ask the State questions regarding Phoenix, South Carolina's electronic case management and service authorization system. In 2022 the State said it was questioning whether the calls were still necessary but noted there was value in these meetings because of MMP staff turnover.

Changes in Leadership

As discussed in the Second Evaluation Report, SCDHHS leadership responsible for Healthy Connections Prime oversight turned over multiple times between 2018 and 2020 and was a cause for concern for several stakeholders. Although by early 2021 stakeholder concerns about leadership's engagement in the demonstration had lessened, leadership changes continued in 2021 with the managed care director position becoming and remaining vacant until an interim director was in place in early 2022. The State said that the changes in leadership and

restructuring of SCDHHS affected the steering of Healthy Connections Prime. However, during the reporting period, the State's demonstration team remained consistent and continued to move Healthy Connections Prime forward.

3.1.2 Integrated Delivery System

Provider Arrangements and Services

During the reporting period, the MMPs noted their successes in bringing on new providers to meet network adequacy requirements and expand operations into the remaining two counties of the State. However, two MMPs said that they had only contracted with new providers to meet network adequacy requirements in the new counties and did not contract with any other new providers. One of these MMPs said that in rural areas of the State, a lack of particular specialty providers continued to be a challenge that it monitored and as possible, addressed.

HCBS providers reported very few concerns in 2021, in contrast to previous years, when they reported frustration with MMP contracting practices. One HCBS provider thought that rather than receiving referrals for Healthy Connections Prime enrollees and then losing those clients to the MMPs' preferred HCBS providers as had been done in previous years, those enrollees were filtered out prior to receiving the referral. In 2021 HCBS providers reported needing to decline referrals because of staff shortages.

MMPs continued to contract with the State Department of Mental Health (DMH) for behavioral health services in community health centers located in each county. As of December 2021, of the approximately 15,000 Healthy Connections Prime enrollees, only 580 received services from DMH providers. The top three services used by Healthy Connections Prime enrollees were psychosocial rehabilitation, injection administration, and nursing services. In 2021, DMH reported serving fewer Healthy Connections Prime enrollees because in general, fewer individuals across the State were reaching out for behavioral health services during the PHE. DMH also shared that enrollees with behavioral health needs faced transportation challenges unrelated to the PHE, impacting their access to services.

Transition of HCBS Waiver Functions

As described in the First Evaluation Report, the State planned to transition waiver functions to MMPs through a systematic three-phase approach. Although the third phase, the transition of the remaining HCBS waiver roles and responsibilities from the State to MMPs had not happened by early 2021, by late 2021, the State and MMPs remained optimistic that the transition would happen before the demonstration ends.

Waiver-like Services and Social Determinants of Health

At their discretion, MMPs also provided flexible benefits—known in South Carolina as "waiver-like" services—to enable enrollees to postpone institutionalization or prevent higher levels of care for frail enrollees. Examples included respite, personal care, and safety equipment. As described in in the Second Evaluation Report, in 2019, MMPs began authorizing these benefits only after waiver eligibility has been determined for enrollees transitioning into waiver services. This change, along with enrollees' hesitancy for in-person contact during the PHE, led

to a low use of waiver-like services. In 2021, only 14 total enrollees received some type of waiver-like service.

Training and Support for MMPs, Providers, and Enrollees

No changes were made in 2021 in the key partners providing training and support for MMPs, providers and enrollees. SC Thrive, the beneficiary advocacy organization under contract with the State, continued to provide outreach and education to enrollees and providers. Many of SC Thrive's outreach activities were virtual because of the PHE, but according to CMS, with the availability of COVID-19 vaccines, SC Thrive began shifting towards in-person events in late 2021. In 2021 SC Thrive also participated in monthly operational calls to share their successes and connect with the MMPs to do more strategic and collaborative outreach .

Ikaso Consulting, the Healthy Connections Prime marketing partner, continued to provide marketing support and participate in monthly operational calls and weekly marketing calls with the State to discuss demonstration-related activities Ikaso needed to be aware of and answer stakeholders' questions on marketing policy.

The Prime Advocate—the Healthy Connections Prime Ombudsman—remained committed to supporting Healthy Connections Prime enrollees by engaging MMPs or providers directly to resolve issues, such as helping enrollees with issues like reaching their care coordinators, transportation challenges, and durable medical equipment requests. The Prime Advocate also informed, educated, and empowered enrollees through outreach. In 2021, the Prime Advocate participated in over 217 events, reaching over 7,000 individuals, and added a quarterly enrollee newsletter to their outreach activities. The Prime Advocate reported that in 2021 DHHS began sharing Healthy Connections Prime enrollee data for outreach activities.

3.2 Eligibility and Enrollment

During the reporting period, after considering extending the demonstration's eligible population to include those under age 65 (21–64), the State decided to continue to limit eligibility to those aged 65 or older.

Enrollment steadily increased over the course of the demonstration from 1,808 in December 2015, to 12,320 in December 2018 and 15,055 in December 2021. However, during 2021, the number of beneficiaries enrolled slightly declined over time, starting at a high of 16,293 in January.

In this section we provide updates on eligibility and enrollment processes, including integration of eligibility systems, enrollment methods, and outreach. We also discuss significant events affecting enrollment patterns during the timeframe covered by this report, including the addition of new counties to the demonstration's service area.

3.2.1 Eligibility and Enrollment Summary

Implementation Effectiveness: Reach

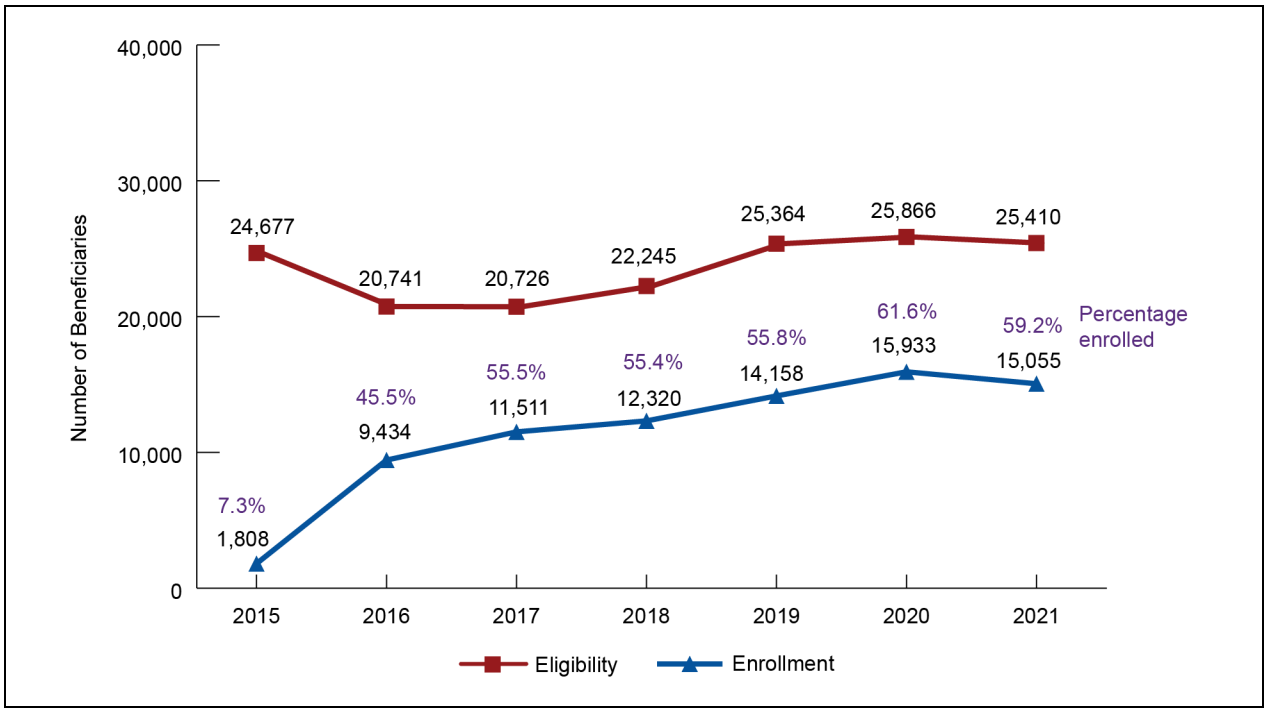
"Reach" is an individual-level measure of participation and refers to the percentage of persons who are affected by a policy, program or initiative. To measure this in the FAI, we examine the percentage of eligible beneficiaries who are enrolled in the demonstration.

Figure 3-1 shows the changes in enrollment and in the percentage of eligible beneficiaries enrolled during the demonstration to date. After a slow start in the percentage of eligible beneficiaries who were enrolled, at just 7.3 percent in 2015, the introduction of passive enrollment in 2016 increased this percentage to 45.5 percent in 2016. The percentage of eligible beneficiaries enrolled remained over 55 percent between 2017 and 2021.

In December 2021, just under 25,500 beneficiaries were eligible for Healthy Connections Prime. Although stakeholders had been optimistic about the possibility of extending the demonstration's eligible population to include those under the age of 65 (ages 21–64) in 2022, there were no changes in the demonstration's eligibility in 2021 because the state decided to instead focus on its managed long-term services and supports strategy. The demonstration remained open to full-benefit Medicare-Medicaid enrollees aged 65 or older and living in the community at the time of enrollment (see First Evaluation Report).

As shown in ***Figure 3-1***, enrollment steadily increased over the course of the demonstration from 1,808 in December 2015 to 15,055 in December 2021. However, throughout 2021, enrollment declined, with the number of January's active enrollments at 16,293 and December's at 15,055. An increase in January's enrollment was due to an increase in the number of beneficiaries eligible for passive enrollment with the addition of two new counties, Darlington and Horry, to the demonstration service area.

Figure 3-1
Healthy Connections Prime enrollment and eligibility at the end of each calendar year, 2015–2021



FFS = Fee-for-service; SDRS = State Data Reporting System.
NOTE: Enrollment and eligibility are reported as of December each year. Enrollment and eligibility data reported in the SDRS may not match the finder file data used for quantitative analyses, because of the timing for completion and submitting the finder file versus the SDRS. The definition of eligibility used here, and also in ***Section 6, Demonstration Impact on Cost Savings***, includes FFS and Medicare Advantage populations.
SOURCE: SDRS data for 2015-2021. The SDRS items used to collect eligibility and enrollment were: "Total number of beneficiaries who are eligible to participate in the demonstration" and "Total number of beneficiaries who are enrolled in the demonstration, as of the end of the given month."

3.2.2 Integration of Medicare and Medicaid Enrollment Systems

The State's enrollment vendor, Maximus, continued to operate the Healthy Connections Choices Customer Service Center. Beneficiaries could call the service center for options counseling and to enroll. Electronic enrollment applications submitted by SC Thrive, the options counselor, also remained an enrollment option available to beneficiaries in 2021.

3.3 Care Coordination

In 2021, MMPs continued to find new ways to contact enrollees, including working with providers, such as pharmacies, to get current contact information.

A CMT-led review of 15 individual care plans in the spring of 2021 identified promising practices and actionable areas for improvement for each of the MMPs.

Despite lower care coordinator turnover rates between 2017 through 2021 than in previous demonstration years (2015–2016), the rate slightly increased during the PHE (2020 and 2021). Two MMPs reportedly faced staffing challenges due to competition from hospital systems offering financial incentives during this time.

Care coordination, intended to be person-centered, to promote enrollees' ability to live independently, and to coordinate the full set of Medicare and Medicaid benefits, including medical, behavioral health, social support services, and LTSS continued to be a central function of Healthy Connections Prime in 2021. As outlined in the First Evaluation Report, to accomplish these goals, care coordinators conduct comprehensive assessments, and develop and implement care plans. MMPs make special efforts to reach enrollees who are difficult to locate. Care coordinators' activities are monitored by the percentage of enrollees who they can reach, conduct an assessment for, prepare a care plan for, and identify—with the enrollee—care plan goals. Each enrollee is assigned a care coordinator who is responsible for coordinating all covered medical care, behavioral health care, and LTSS. Updates made between 2018 and 2020 in the design of Healthy Connections Prime's care coordination model are described in the Second Evaluation Report. In this section we highlight major findings related to key components and processes of Healthy Connections Prime's care coordination model, contacting and locating enrollees, assessments, and care planning, for 2021.

Implementation Effectiveness: Dose

Earlier in this report, we discussed "reach," which measures the percentage of persons who receive or are affected by or participate in a *policy, program or initiative*. "Dose" is a measure of implementation effectiveness that refers to the amount of, exposure to, or uptake of an *intervention* provided to a target population within a program or initiative. In the FAI, the main intervention is care coordination.

Because we do not have a direct measure of how many enrollees receive care coordination, we use a proxy measure for dose: the percentage of enrollees that MMPs were not able to reach or locate. This measure gives a sense of how many enrollees were not able to make a choice to engage in care coordination. I.e., without connecting with care coordinators, enrollees could not participate in health risk assessments, have care plans, or identify care goals (these activities are discussed later in this section).

Figure 3-2 shows that this measure generally increased over the course of the demonstration to date, suggesting that a smaller percentage of new enrollees was able to receive care coordination over time.

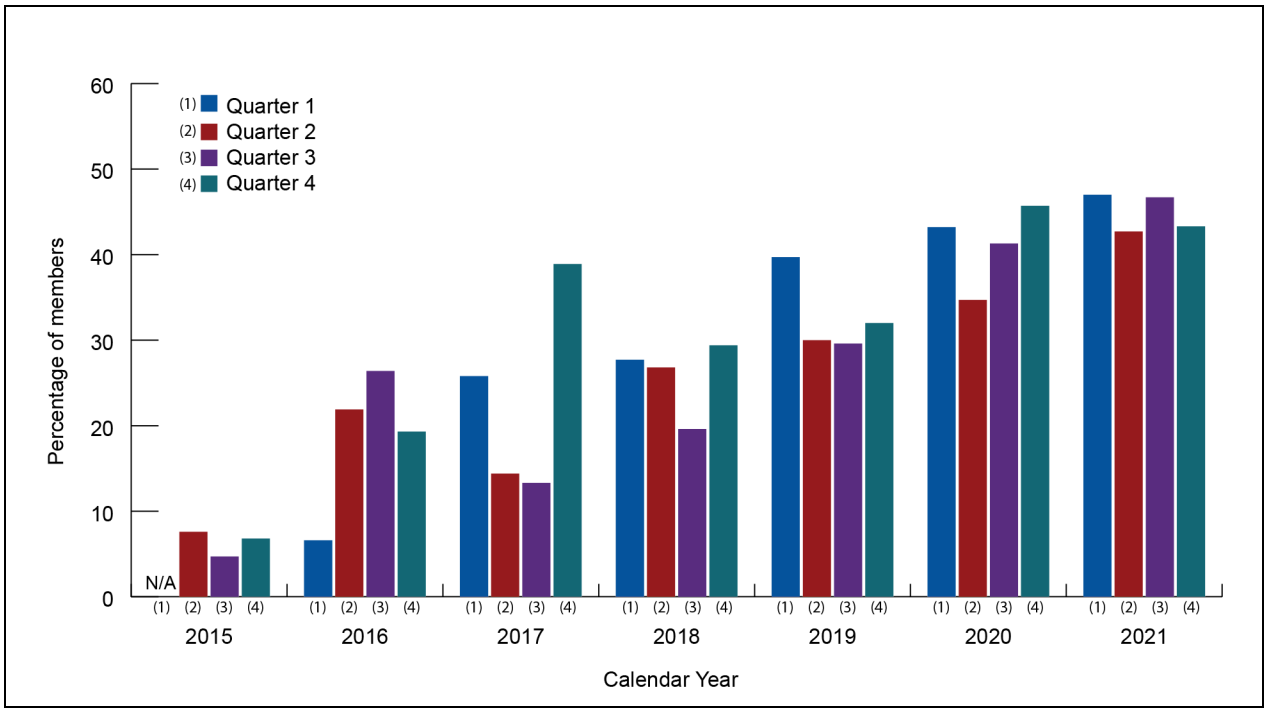
3.3.1 Contacting and Locating Enrollees

Successfully contacting enrollees was a challenge for the MMPs during the report period. As shown in ***Figure 3-2*****,** the percentage of enrollees that MMPs were unable to reach following three attempts within 90 days of enrollment generally increased over the course of

the demonstration to date, with a low of 4.7 percent in quarter 3 of 2015 and a high of 47.0 percent in quarter 1 of 2021.

In prior years, the MMPs reported difficulty contacting new enrollees due to incorrect or incomplete contact information, and they described new modes of outreach to overcome this challenge. In 2021, MMPs continued to try new solutions. For example, two MMPs worked with providers, such as pharmacies, to get current enrollee contact information. When paying a prescription claim, if there was a discrepancy in contact information, one of these MMPs would work with the pharmacy to update their records. The plans continued to share their best practices in reaching enrollees during their monthly operational calls.

Figure 3-2
Percentage of members that Healthy Connections Prime MMPs were unable to reach following three attempts, within 90 days of enrollment, 2015–2021



MMP = Medicare-Medicaid Plan; N/A = not applicable.
NOTES: Because the South Carolina demonstration began in February 2015, data are not applicable for quarter 1 of 2015. Advicare withdrew from the demonstration and is not included in data after quarter 3 of 2016.
SOURCE: RTI analysis of MMP-reported data for Core Measure 2.1 as of January 2023. The technical specifications for this measure are in the Medicare-Medicaid Capitated Financial Alignment Model Core Reporting Requirements document.

3.3.2 Assessments

As described in the Second Evaluation Report, the 2018 contract amendment made some key changes to comprehensive assessments, including streamlining assessment completion timelines for all new enrollees, regardless of risk level, to within 90 calendar days of enrollment

and permitting MMPs to use their own telephonic assessments for low and moderate-risk enrollees (CMS, 2018). These processes remained in place and unchanged in 2021.

Beginning in March 2020, CMS and SCDHHS paused the in-person assessment requirement for all enrollees during the PHE and instead allowed MMPs to do telephonic assessments. This change remained in place throughout 2021, and according to the State, one of the biggest successes of the demonstration in 2021 was the MMPs' adaptation to supporting enrollees telephonically (e.g., assessments) and engaging enrollees through virtual outreach methodologies. CMS also reported in 2021 that the MMPs' ability to continue care coordination activities during the PHE was a success. Despite the success MMPs had with telephonic assessments, the State said in 2021 that it was looking forward to reinstating in-person assessments because in-person interactions identify issues that may otherwise go ignored or unnoticed.

As shown in ***Table 3-1***, among all enrollees, the percentage with an assessment completed within 90 days of enrollment decreased over the course of the demonstration to date, with a high of 89.4 in quarter 1 of 2016 and a low of 35.4 in quarter 1 of 2021. However, during the same period, among enrollees willing to participate and who could be reached, the percentage with assessments completed within 90 days of enrollment remained high, exceeding 90 percent between 2016 and 2020.

The State and CMT both acknowledged that the unable-to-reach and assessment completion rates reflected challenges seen across all State demonstrations due to the PHE, but these rates remained topics of focus for the CMT during the report period. CMS noted that this was to ensure that the MMPs would continue to make efforts to get assessments completed. Moving forward, one MMP expected to see an increase in their assessment completion rates after it made process improvements in 2022. Another plan expected to see assessment completion rates increase due in part to their efforts to address staffing challenges and improve enrollee contact information.

Table 3-1
Healthy Connections Prime MMP members whose assessments were completed within 90 days of enrollment, 2015–2021

Quarter	Total number of members whose 90th day of enrollment occurred within the reporting period and who were currently enrolled at the end of the reporting period	Percentage of members with assessments completed within 90 days of enrollment[1]	
		All members	All members willing to participate and who could be reached[2]
2015			
Q1	N/A	N/A	N/A
Q2	1,470	72.8	80.8
Q3	321	74.1	79.3
Q4	177	83.1	89.6
2016			
Q1	226	89.4	97.6
Q2	3,824	65.6	93.0
Q3	3,707	59.9	95.1
Q4	1,281	72.8	96.5
2017			
Q1	1,874	63.8	92.1
Q2	181	75.1	95.8
Q3	180	73.9	91.7
Q4	3,870	48.9	95.3
2018			
Q1	987	62.3	95.9
Q2	803	63.9	95.0
Q3	562	72.4	97.6
Q4	758	61.2	94.5
2019			
Q1	4,231	49.7	96.8
Q2	716	60.8	96.5
Q3	1,863	60.0	94.7
Q4	659	57.8	93.6
2020			
Q1	3,472	45.7	92.9
Q2	862	58.6	98.1
Q3	1,277	52.0	97.6
Q4	858	44.9	95.5

(continued)

Table 3-1 (continued)
Healthy Connections Prime MMP members whose assessments were completed within 90 days of enrollment, 2015–2021

Quarter	Total number of members whose 90th day of enrollment occurred within the reporting period and who were currently enrolled at the end of the reporting period	Percentage of members with assessments completed within 90 days of enrollment[1]	
		All members	All members willing to participate and who could be reached[2]
2021			
Q1	2,004	35.4	91.0
Q2	928	42.9	87.5
Q3	781	39.9	86.9
Q4	578	40.5	84.5

MMP = Medicare-Medicaid Plan; N/A = not applicable; Q = quarter.
[1] The "all members" column presents the percentage of assessments completed for members whose 90th day of enrollment occurred within the reporting period. In the "all members willing to participate and who could be reached" column, the percentages exclude members who were documented as unwilling to participate in an assessment, and members who the MMP was unable to reach following three documented outreach attempts.
[2] The number of members willing to participate and who could be reached cannot be calculated using the corresponding percentages in this table. As indicated in table note 1, RTI used additional data points to calculate these percentages.
NOTES: Because the South Carolina demonstration began in February 2015, data are not applicable for quarter 1 of 2015. Advicare withdrew from the demonstration and is not included in data after quarter 3 of 2016.
SOURCE: RTI analysis of MMP-reported data for Core Measure 2.1 as of January 2023. The technical specifications for this measure are in the Medicare-Medicaid Capitated Financial Alignment Model Core Reporting Requirements document.

3.3.3 Care Planning

As detailed in the First Evaluation Report, within 90 days of enrollment, an individual care plan (ICP) is developed. Each ICP includes language, culture, and service history of each enrollee, and identifies behavioral, functional, and psychosocial needs of the enrollee. Although ICPs are intended to provide enrollees with meaningful information they can use to improve their health and achieve their goals, one MMP told CMS that the ICPs were difficult for enrollees to understand. In the spring of 2021, the CMT led a review of 15 ICPs to better understand how ICPs were being implemented and how they had changed since a 2019 ICP review. The 2021 review team included two CMS clinicians with backgrounds in geriatrics and behavioral health. Review team members would ask themselves, "what use would this [care plan] be to [an enrollee]?" CMS and the State felt the review findings identified promising practices and actionable areas for improvement for each MMP.

South Carolina Healthy Connections Prime MMPs report core quality measures that all Medicare-Medicaid Plans are required to report, as well as State-specific measures. MMPs reported on care plan completion using two different measures during the demonstration. From 2015–2017, they used a state-specific measure. ***Table 3-2*** shows that, for all enrollees, the percentage with care plans completed within 90 days of enrollment varied during 2015-2017. The percentage ranged from 48 to 90 during 2015 through 2017. For all enrollees willing to complete a care plan and who could be reached, the percentage with care plans completed within 90 days remained high, only dropping below 84 percent in quarter 2 of 2016.

Table 3-2
Healthy Connections Prime MMP low, moderate, and high-risk members with an Individualized Care Plan completed within 90 days of enrollment, 2015–2017

Quarter	Total number of members whose 90th day of enrollment occurred within the reporting period	Percentage of members with care plans completed within 90 days of enrollment[1]	
		All members	All members willing to complete a care plan and who could be reached[2]
2015			
Q1	N/A	N/A	N/A
Q2	1,506	82.7	89.1
Q3	322	74.8	84.3
Q4	181	86.7	95.7
2016			
Q1	230	90.0	97.6
Q2	3,836	51.3	68.1
Q3	3,711	57.3	90.5
Q4	1,331	71.3	92.7
2017			
Q1	2,072	65.8	90.6
Q2	190	64.7	85.4
Q3	184	71.2	89.1
Q4	4,226	48.0	94.0

MMP = Medicare-Medicaid Plan; N/A = not applicable; Q = quarter.
[1] The "all members" column presents the percentage of care plans completed for members whose 90th day of enrollment occurred within the reporting period. In the "all members willing to complete a care plan and who could be reached" column, the percentages exclude members who were documented as unwilling to complete a care plan and members who the MMP was unable to reach following three documented outreach attempts.
[2] The number of members willing to complete a care plan and who could be reached cannot be calculated using the corresponding percentages in this table. As indicated in table note 1, RTI used additional data points to calculate these percentages.
NOTES: Because the South Carolina demonstration began in February 2015, data are not applicable for quarter 1 of 2015. Advicare withdrew from the demonstration and is not included in data after quarter 3 of 2016.
SOURCE: RTI analysis of MMP-reported data for State-specific Measure SC 2.1 as of January 2023. The technical specifications for this measure are in the Medicare-Medicaid Capitated Financial Alignment Model South Carolina-Specific Reporting Requirements document.

As of 2018, MMPs reported on care plan completion using a newly introduced core measure that applies across all FAI demonstrations. As shown in ***Table 3-3***, the percentage of all enrollees with care plans completed within 90 days of enrollment decreased overall during 2018-2021, with a low of 31.2 percent in quarter 1 of 2021 and a high of 71.0 percent in quarter 3 of 2018. Among enrollees willing to participate and who could be reached, care plan completion rates remained above 81.9 percent during this timeframe.

Table 3-3
Healthy Connections Prime MMP members with care plans completed within 90 days of enrollment, 2018–2021

Quarter	Total number of members whose 90th day of enrollment occurred within the reporting period and who were currently enrolled at the end of the reporting period	Percentage of members with care plans completed within 90 days of enrollment[1]	
		All members	All members willing to complete a care plan and who could be reached[2]
2018			
Q1	987	59.8	89.3
Q2	803	62.5	91.6
Q3	562	71.0	95.2
Q4	758	59.9	92.3
2019			
Q1	4,231	47.4	92.7
Q2	716	55.9	88.7
Q3	1,863	54.4	87.6
Q4	659	55.1	89.9
2020			
Q1	3,472	41.9	87.6
Q2	862	54.9	92.9
Q3	1,277	49.4	94.9
Q4	858	42.2	91.4
2021			
Q1	2,004	31.2	85.3
Q2	928	38.5	81.9
Q3	781	37.3	83.1
Q4	578	39.8	83.3

MMP = Medicare-Medicaid Plan; Q = quarter.
[1] The "all members" column presents the percentage of care plans completed for members whose 90th day of enrollment occurred within the reporting period. In the "all members willing to complete a care plan and who could be reached" column, the percentages exclude members who were documented as unwilling to complete a care plan and members who the MMP was unable to reach following three documented outreach attempts.
[2] The number of members willing to complete a care plan and who could be reached cannot be calculated using the corresponding percentages in this table. As indicated in table note 1, RTI used additional data points to calculate these percentages.
SOURCE: RTI analysis of MMP-reported data for Core Measure 3.2 as of January 2023. The technical specifications for this measure are in the Medicare-Medicaid Capitated Financial Alignment Model Core Reporting Requirements document.

3.3.4 Care Coordination Staffing

As shown in ***Table 3-4***, in 2015 through 2021 the number of care coordinators increased overall, from a low of 24 in 2015 to a high of 118 in 2021. The percentage of care coordinators

assigned to care management and conducting assessments remained above 90 percent after 2015. The enrollee load (case load) increased over the course of the demonstration, with a low of 90.3 in 2015 and a high of 144.7 in 2020. Despite an increase in average case load, the turnover rate was lower in 2017 through 2021 than in the first 2 demonstration years (2015–2016). Turnover did increase slightly over the course of the PHE (2020 and 2021). In 2021, two of the MMPs reported facing staffing challenges (i.e., hiring and retention). The State indicated that the staffing challenges were due to competition from hospital systems offering financial incentives. On the other hand, the third MMP did not experience these same staffing challenges in 2021 because it was actually able to hire hospital staff who were experiencing burnout and looking to transition into another suitable position.

Table 3-4
Care coordination staffing at Healthy Connections Prime MMPs, 2015–2021

Calendar year	Total number of care coordinators (FTE)	Percentage of care coordinators assigned to care management and conducting assessments	Member load per care coordinator assigned to care management and conducting assessments	Turnover rate (%)
2015	24	83.3	90.3	29.4
2016	99	92.9	121.0	41.1
2017	94	92.6	132.1	13.0
2018	102	94.1	128.1	26.6
2019	116	94.0	129.6	13.4
2020	112	98.2	144.7	14.5
2021	118	97.5	130.7	15.0

FTE= full time equivalent; MMP = Medicare-Medicaid Plan.
SOURCE: RTI analysis of MMP-reported data for Core Measure 5.1 as of January 2023. The technical specifications for this measure are in the Medicare-Medicaid Capitated Financial Alignment Model Core Reporting Requirements document.

3.4 Stakeholder Engagement

The State shared information with stakeholders through biannual stakeholder updates. SC Thrive and the Prime Advocate led targeted outreach to new stakeholders.

Although MMPs initially hesitated to shift to virtual enrollee advisory committee meetings, in 2021 the MMPs reported that the shift increased enrollee engagement.

In this section we describe stakeholder engagement activities during 2021, and the impact of those efforts on the demonstration.

3.4.1 Targeted Outreach

In 2021, the State continued to share Healthy Connections Prime biannual electronic stakeholder updates with stakeholders, such as advocates and providers. Updates included provider name changes and notice of new demonstration counties, and links to resource materials. The October edition included a summary of CMS-sponsored interviews with 45 demonstration enrollees, which were conducted in late 2020 and early 2021.

In addition to the stakeholder updates, the State continued to leverage its contract with SC Thrive to conduct targeted outreach. When SC Thrive was informed of the addition of new counties to the Healthy Connections Prime service area, staff targeted their outreach efforts in those counties. In early 2022, CMS shared that when the State learned of providers discouraging their patients from enrolling in Healthy Connections Prime, it dispatched SC Thrive to educate these providers.

The Prime Advocate, the demonstration's ombudsman, continued to promote Healthy Connections Prime and the role of the Prime Advocate by building new community partnerships. In 2021, these newly established partnerships—including one with a county government's community services department and other agencies—improved access to needed services for some enrollees who have housing concerns, are computer illiterate or lack computer access, or may be socially isolated and lonely.

3.4.2 Enrollee Advisory Committees

As described in past evaluation reports, the three-way contract required MMPs to establish an enrollee advisory committee. Prior to 2020, the MMPs engaged enrollee advisory committees via in-person quarterly meetings. In mid-2020, in response to the PHE, the MMPs switched to virtual or telephonic quarterly meetings and continued in this format throughout 2021. Although MMPs initially hesitated to shift to a virtual platform, in 2021 they reported that the shift to virtual stakeholder meetings increased enrollee engagement. The meetings covered a range of topics, such as COVID-19 vaccinations, challenges related to caring for the aging, and enrollee success stories and challenges. The shift to virtual advisory committee meetings was such a success that in early 2022 the State reported that the MMPs planned to use a hybrid option in the future.

3.5 Financing and Payment

During the report period, MMPs reported that both the Medicare and Medicaid portion of the capitated rates were adequate. They were largely satisfied with improvement in monthly reconciliation of the Medicaid portion of the rates.

The State and MMPs explored the feasibility of submitting Medicaid encounters for analyses, with the potential of shifting to an encounter-based Medicaid rate-setting methodology. State officials determined ultimately that this was not feasible.

In this section, we provide a summary of changes to the financing and payment for Healthy Connections Prime since 2020, and any pertinent findings related to these changes.

3.5.1 Capitation Rates

Rating Categories and Risk Adjustment

As discussed in detail in prior evaluation reports, Healthy Connections Prime MMP payments are based on risk-adjusted capitation rate categories. These rates are discounted to ensure savings to Medicare and Medicaid, and are subject to quality withholds.

MMPs were mostly satisfied with the Medicare portion of the capitated rates. However, one MMP raised concern in 2021 about the impact that the PHE in 2020 would have on the risk-adjusted payments for enrollees in 2021 and 2022. Specifically, the decline in utilization experienced in the first half of 2020 could impact the extent to which enrollees have documented diagnoses and chronic conditions that would otherwise be used to calculate their risk-adjusted payment. However, MMPs noted that CMS emergency rulings for telehealth visits, allowing providers to expand billable services for telehealth visits, were helpful in supporting accurate risk documentation during the PHE.

The Medicaid portion of the capitated rates increased in each rate cell from 2020 through 2022. Specifically, the Community rate increased from $88 in 2020 to $96 in 2022; nursing facility rates increased from $5,865 to $6,098; HCBS waiver rates increased from $1,375 to $1,415; and the HCBS Waiver-Plus rate increased from $3,768 to $3,902. The State reported that it reconciles HCBS Waiver-Plus rates for those newly enrolled in the HCBS waiver on a 6-month basis. As of December 2021, there were 2,709 MMP enrollees who qualified for HCBS waiver services.[7]

Quality Withhold Percentages

As detailed in the First Evaluation Report, CMS and the State withhold part of their respective capitation payments pending analysis of MMP performance on a set of CMS core and State-specific quality measures. As part of the 2020 contract amendment, the quality withhold percentages will remain 3 percent through demonstration year 8 (2023). The 2020 contract amendment also added an additional 1 percent withhold on the Medicare Parts A and B portion of the rates starting in demonstration year 6 (2021). As of 2021, the MMPs had not reported any concerns regarding this additional increase and had earned back 100 percent of the additional withhold amount. See ***Section 3.6, Quality of Care*** for further discussion on MMP performance on the quality withhold measures.

Savings Percentage

Capitation payments to the MMPs include a discount relative to Medicare and Medicaid baseline rates, referred to as the aggregate savings percentage. The aggregate savings percentage for the demonstration is applied equally to Medicare Parts A and B and Medicaid baseline spending amounts, and originally was to increase gradually to 4 percent by 2018. As discussed in

[7] Healthy Connections Prime Program Data, 2021.

the Second Evaluation Report and as per the 2020 contract amendment, the savings percentages were held at 3 percent starting in 2018 and will remain at 3 percent through 2023.

MMP Feedback on the Rates

All MMPs reported that the Medicare Parts A and B portion of the capitated rates was adequate. One MMP noted in 2021 a concern that the risk adjustment to the Medicare rate would not be accurate due to the PHE. It explained that the decline in service utilization because of the PHE would result in underreporting of diagnoses and chronic conditions (described earlier in this section). However, the State noted in 2022 that the MMPs were largely satisfied with the Medicare portion of the capitated rates.

Two of the three MMPs reported in 2021 that they were generally satisfied with the Medicaid portion of the rates, albeit they are more "borderline" than the Medicare portion. As discussed in the Second Evaluation Report, MMPs again reported concerns around the timeliness of the HCBS Waiver-Plus and Nursing Facility rate reconciliation. One MMP noted that delays in these reconciliation payments made future financial planning difficult. However, in 2021 all three MMPs reported that the stability and timeliness of reconciliation payments had improved and was no longer a pressing concern.

Finally, as discussed in the Second Evaluation Report, during this reporting period as well, MMPs reported interest in updating the Medicaid rate methodology to being encounter-based rather than based on historical FFS claims. To that end, the State worked with each MMP in 2021 to determine the feasibility of accessing and analyzing MMP Medicaid encounter data; State officials noted they had hoped to transition to an encounter-based methodology in 2022. Efforts to that end were not successful in part due to the State's inability to process and analyze encounters submitted by the MMPs (see later in this section).

Medical Loss Ratios

The MLR is the percent of its capitation payments that an MMP spends on covered services, services provided in lieu of more costly covered services, and personnel costs for care coordinators. At the start of the demonstration, the three-way contract set a target MLR of 85 percent, which was the same as used for MA plans. The 2020 contract amendment adjusted the MLR to increase by 0.5 percent in each year starting in demonstration year 7 (2022). Thus, the MLR target is 85.5 percent for demonstration year 7 (2022) and 86.0 percent for demonstration year 8 (2023).

MMP MLR results show that MMPs had MLRs that ranged from 76 percent to 108 percent from demonstration year 1 (2015–2016) through demonstration year 4 (2019). One MMP had an MLR over 100 percent in demonstration years 1, 3, and 4 and 99 percent in demonstration year 2. MLRs for the remaining MMPs ranged from 76 percent to 98 percent in the first demonstration year, 85 percent to 87 percent in the second, 88 percent to 89 percent in the third, and 86 percent to 87 percent in demonstration year 4.

3.5.2 Encounter Data

In 2021, MMPs continued to submit complete and timely encounter data to CMS. As of 2022, MMPs were not able to submit encounters to the State. In 2021, the State reported efforts

to augment their ability to accept and analyze MMP encounter data. South Carolina's Revenue and Fiscal Affairs Office receives MMP encounters from CMS and houses the data with the goal of at some point using the encounters to help assess the Medicaid capitated rates, which eventually the State determined was not successful. MMPs continued to work with CMS to differentiate skilled nursing facility (SNF) and long-stay NF service lines for their encounter reporting.

3.6 Quality of Care

In response to access to care challenges stemming from the PHE, MMPs focused on efforts to improve enrollee access to preventive services such as breast cancer screenings and flu shots.

Due to the PHE, all MMPs were eligible for the quality withhold adjustment for an extreme and uncontrollable circumstance in 2020, and therefore received 100 percent of the withheld amount, irrespective of measure performance. Assessment of quality withhold performance measures resumed in 2021. That year, two MMPs received 50 percent of quality withhold payments, and one MMP received 100 percent.

In this section we provide information on the quality measures for the demonstration, updates on the quality management structure and activities for the demonstration, and Healthcare Effectiveness Data and Information Set (HEDIS) results. We discuss results of the demonstration's impact on quality measures, separately defined using Medicare claims, in ***Section 5, Demonstration Impact on Service Utilization and Quality of Care***.

3.6.1 Quality Measures and Quality Withholds

MMPs are required to report performance on a combination of CMS core and State-specific quality measures, some of which are designated as quality withhold measures. CMS and the State withhold a portion of their share of each MMP's capitation payment, some or all of which is paid to the MMP when specific thresholds for the quality withhold measures are met.

In recent years, CMS and the State made a few revisions to the applicable quality withhold measures for South Carolina MMPs. As of demonstration year 4 (2019), the State changed their quality withhold measures to include Comprehensive Diabetes Care and Follow-up after Inpatient Hospital Discharge measures (see the Second Evaluation Report). The 2020 contract amendment added an additional 1 percent withhold on the Medicare Parts A and B portion of the capitation payment starting in demonstration year 6 (2021), with repayment of the additional withhold based solely on the Hemoglobin A1c Control for Patients with Diabetes measure. And finally, the Comprehensive Diabetes Care measure was retired as of demonstration year 7 (2022), and was replaced by the standalone Eye Exam for Members with Diabetes measure as a State-specific withhold.

Due to the PHE, all MMPs were eligible for the quality withhold adjustment for an extreme and uncontrollable circumstance in calendar year 2020. Consequently, all MMPs

received 100 percent of the withheld amount for calendar year 2020 based solely on full reporting of all applicable quality withhold measures. In 2021, the assessment of performance-based quality withhold measures resumed. For demonstration year 6 (2021), two MMPs received 50 percent of quality withhold payments, and one MMP received 100 percent. In 2021 all three MMPs received 100 percent of the additional quality withhold on the Medicare Parts A and B component based on the Hemoglobin A1c Control for Patients with Diabetes measure.

3.6.2 Quality Management Activities

The State's External Quality Review Organization continued to conduct their annual review and validation of performance measures reported to the State. However, since the beginning of the PHE (2020), all review and validation of MMP quality improvement projects have been on hold.

During the reporting period, MMPs focused on a number of quality measures by increasing enrollees' use of preventive care such as colorectal cancer screenings and hemoglobin A1C checks. Two MMPs noted some challenges to ensuring access to primary and behavioral health care. One MMP reported in 2021 that scheduling appointments with primary care providers was still challenging. Another MMP reported that it had observed that its enrollees were experiencing isolation and depression, and greater emphasis was placed on care coordinators to focus on continuing outreach and tracking of those enrollees. To encourage enrollees to seek preventive services, MMPs tried to incentivize providers to enhance routine screenings, preventive care, flu shots, and medication adherence through improved provider communication and "texting provider blasts," or mass text messages with reminders to participating providers.

In 2021, two MMPs reported that they had implemented value-based purchasing arrangements with providers and a large hospital system.

3.6.3 HEDIS Quality Measures Reported for South Carolina Healthy Connections Prime MMPs

MMPs are required to report HEDIS data to CMS and the States. HEDIS is a measure set developed and maintained by the National Committee for Quality Assurance. It is used by the vast majority of commercial, Medicare, and Medicaid health plans to measure performance on dimensions of care and service in order to maintain and/or improve quality. In the FAI, MMPs report data on a subset of HEDIS measures that are required of all Medicare Advantage plans.

Five of the 13 Medicare HEDIS measures for MMP enrollees that RTI analyzes are reported in ***Figures 3-3*** through ***3-7***, with results on all 13 measures appearing in ***Table B-1*** in ***Appendix B.*** RTI identified these measures in its Aggregate Evaluation Plan based on their historic completeness, reasonability, and sample size. HEDIS data for 2016–2021 were available for all three Healthy Connections Prime MMPs. In response to the PHE, CMS did not require Medicare plans (including MMPs) to submit HEDIS data covering 2019. Medicare plans (including MMPs) resumed normal reporting for the 2020 measurement year.

Detailed descriptions of selected HEDIS measures can be found in the RTI Aggregate Evaluation Plan. Results reported in ***Figures 3-3*** through ***3-7*** show Healthy Connections Prime

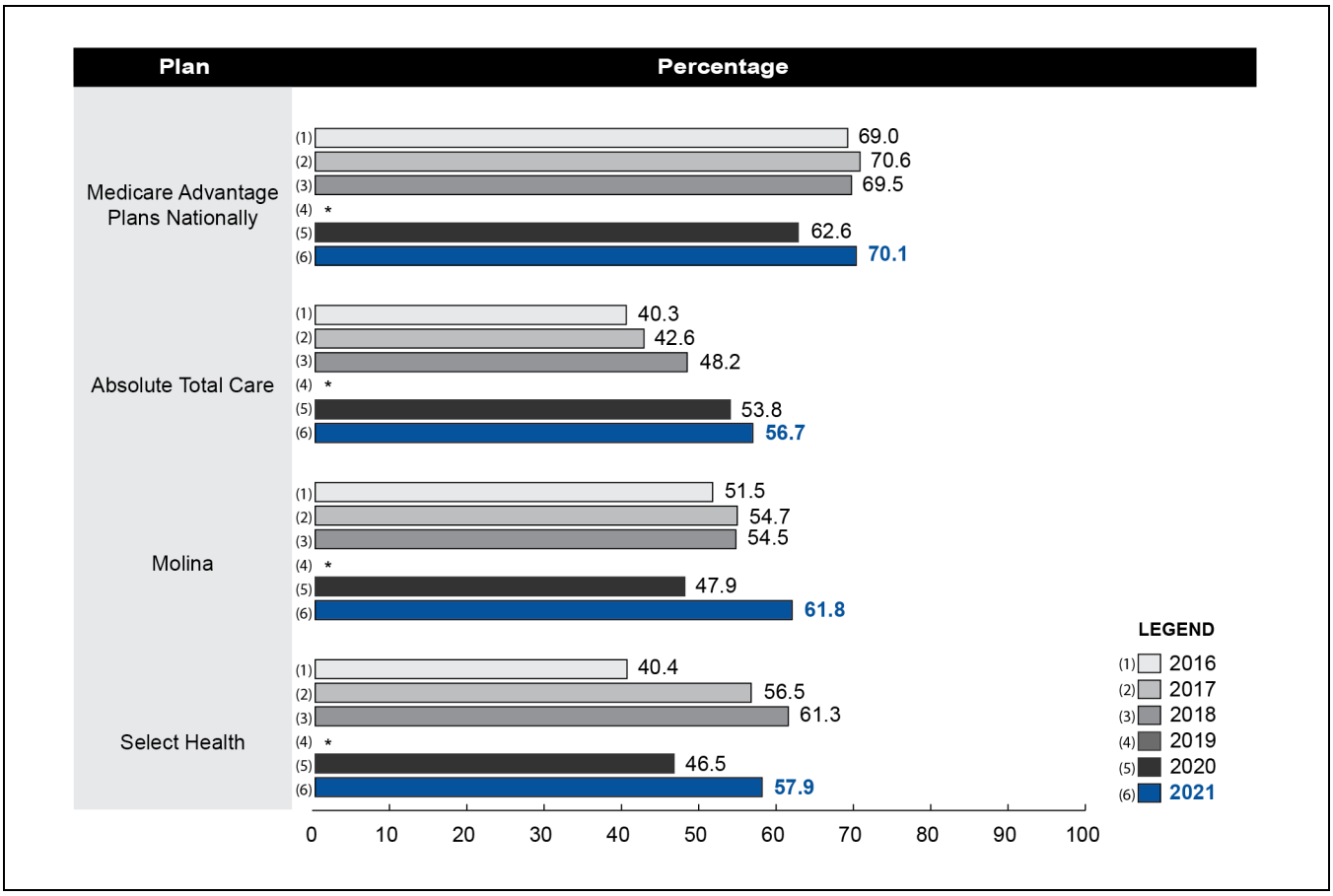
MMPs' 2016 through 2021 HEDIS performance data on measures for blood pressure control, 30-day follow-up after hospitalization for mental illness, good control of Hemoglobin A1c (HbA1c) levels (<8.0 percent), medication review (one of the Care for Older Adults measures), and plan all-cause readmissions (ages 65+).[8]

Although monitoring trends in MMP performance is the primary focus of our HEDIS analysis, the figures and appendix table also compare MMP performance to national Medicare Advantage plan means for reference when available. We provide the national Medicare Advantage plan means with the understanding that Medicare Advantage enrollees and demonstration enrollees may have different health and sociodemographic characteristics which would affect results. Previous studies on health plan performance reveal poorer quality ratings for plans serving a higher proportion of dually eligible beneficiaries and beneficiaries with disabilities. Additionally, HEDIS measure performance, in particular, is slightly worse among Medicare plans serving areas with lower income and populations with a higher proportion of minorities (ASPE, 2016). Comparisons to national Medicare Advantage plan means should be considered with these limitations in mind.

As shown in ***Figure 3-3***, all MMPs improved performance on blood pressure control from 2016 to 2021. Increases were generally steady, with some MMPs showing more variability than others year over year.

[8] These are hospital readmissions.

Figure 3-3
Blood pressure control[1], 2016–2021:
Reported performance rates for Healthy Connections Prime MMPs



* = data not available; HEDIS = Healthcare Effectiveness Data and Information Set; MA = Medicare Advantage; MMP = Medicare-Medicaid Plan.

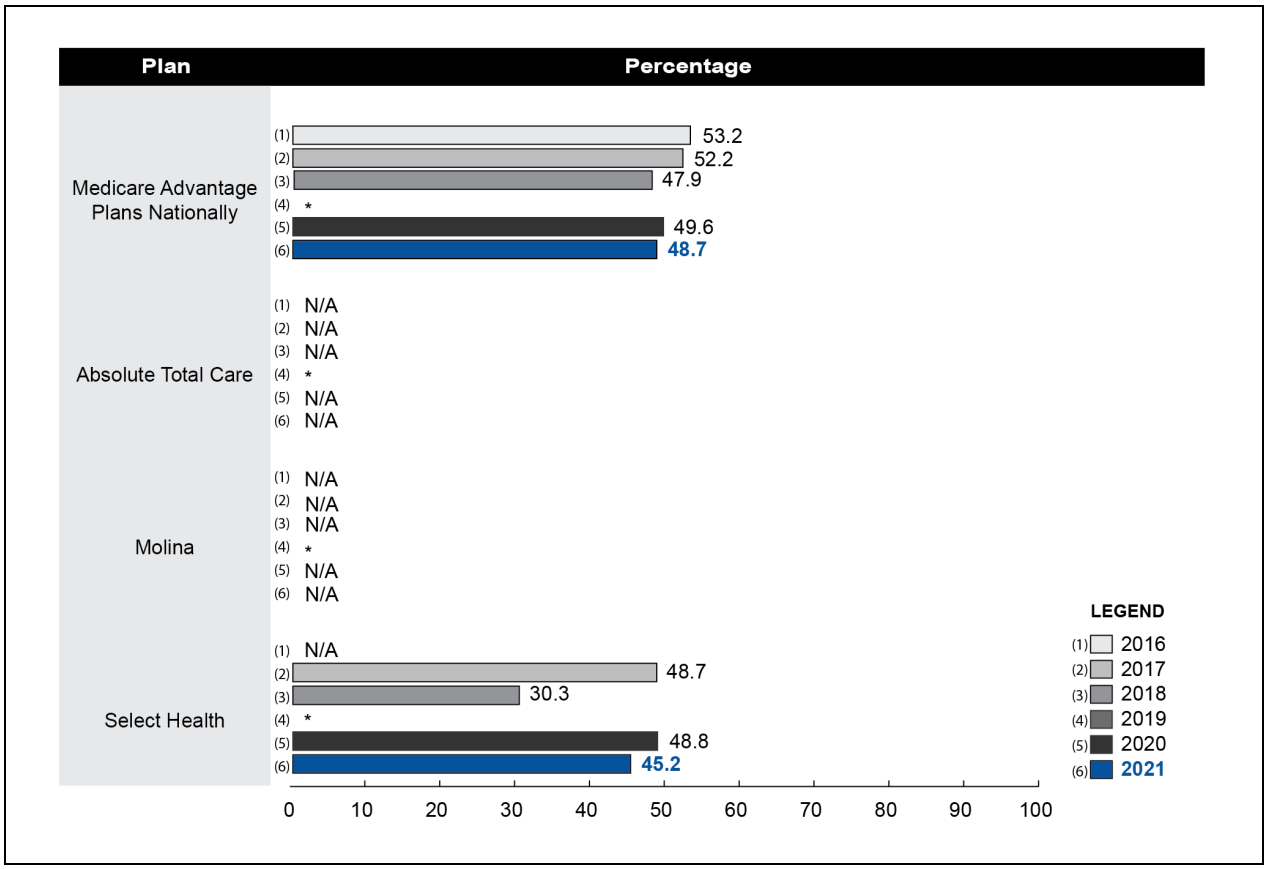
[1] The following criteria were used to determine adequate blood pressure control: less than 140/90 mm Hg for enrollees 18–59 years of age; diagnosis of diabetes and <140/90 mm Hg for enrollees 60–85 years of age; no diagnosis of diabetes and <150/90 mm Hg for enrollees 60–85 years of age.

NOTES: In response to the COVID-19 Public Health Emergency, CMS did not require MA plans (including MMPs) to submit HEDIS data covering the 2019 measurement year. Effective January 1, 2022, Absolute Total Care became Wellcare Prime.

SOURCE: RTI analysis of 2016 through 2021 HEDIS measures.

Figure 3-4 shows that for 30-day follow-up after hospitalization for mental illness, performance was uneven from 2017-2021 for the one MMP that met sample size requirements for reporting.

Figure 3-4
30-day follow-up after hospitalization for mental illness[1], 2016–2021: Reported performance rates for Healthy Connections Prime MMPs



*= data not available; HEDIS Effectiveness Data and Information Set; MA = Medicare Advantage; MMP = Medicare-Medicaid Plan; N/A = not applicable, where the number of enrollees in the MMP's provided HEDIS data available for inclusion in the measure was less than 30, and therefore not reported per RTI's decision rule for addressing low sample size.

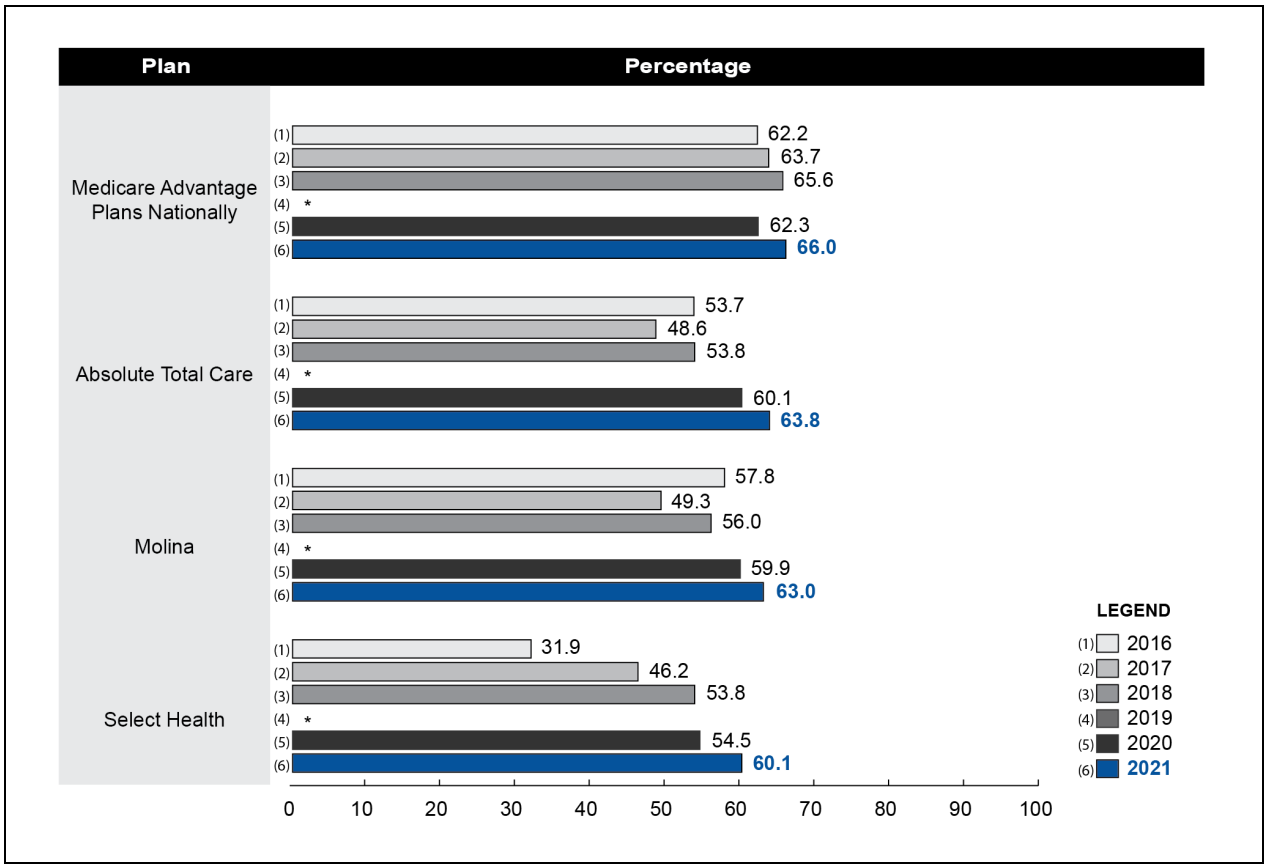
[1] NCQA implemented a significant specification change with HEDIS 2017, disallowing same-day follow-up visits. National benchmarks fell from HEDIS 2017 to HEDIS 2018.

NOTES: In response to the COVID-19 Public Health Emergency, CMS did not require MA plans (including MMPs) to submit HEDIS data covering the 2019 measurement year. Effective January 1, 2022, Absolute Total Care became Wellcare Prime.

SOURCE: RTI analysis of 2016 through 2021 HEDIS measures.

As shown in ***Figure 3-5***, all MMPs reported an increase in performance rates for controlling HbA1c levels (<8.0%) from 2016 to 2021. Select Health greatly improved over time, with the most pronounced increase between 2016 and 2017.

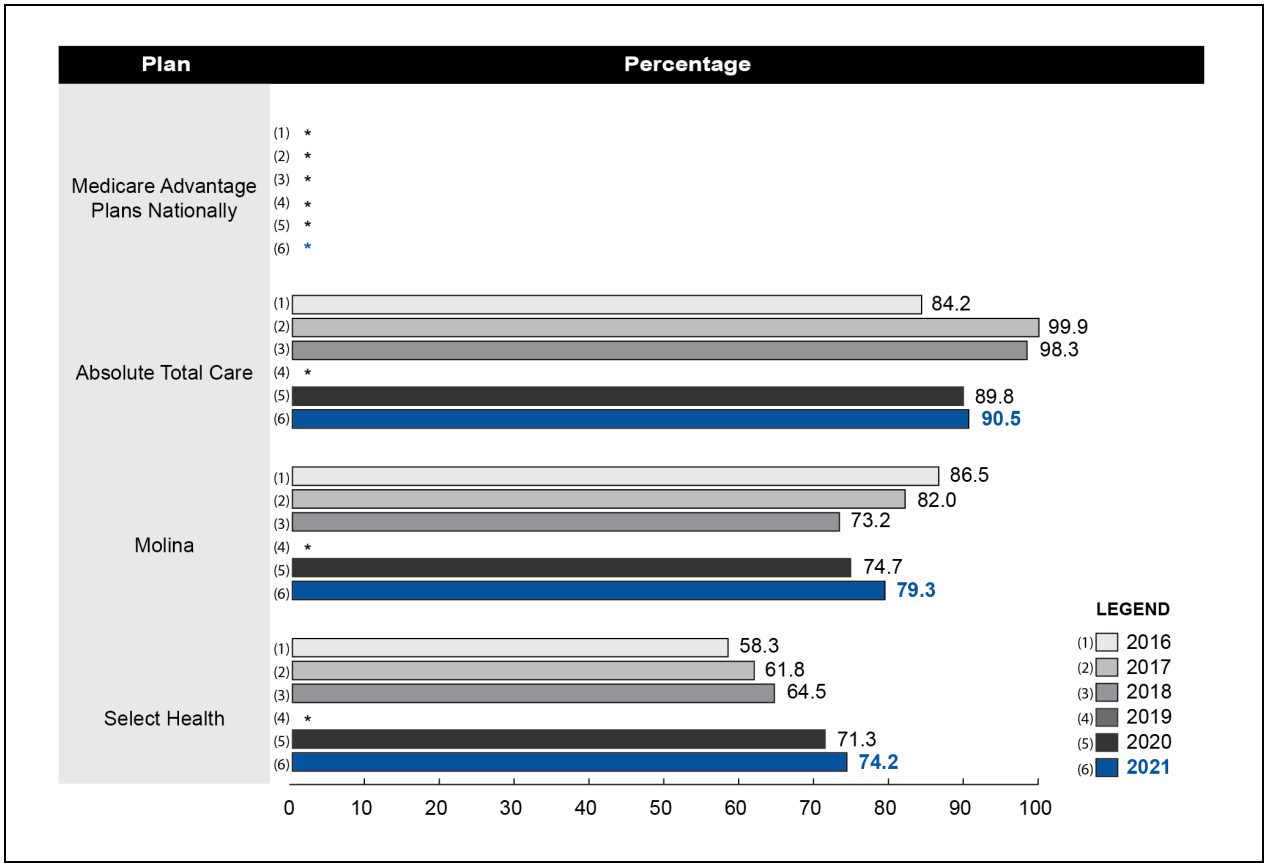
Figure 3-5
Good control of HbA1c level (<8.0%), 2016–2021:
Reported performance rates for Healthy Connections Prime MMPs



* = data not available; HEDIS = Healthcare Effectiveness Data and Information Set; MA = Medicare Advantage; MMP = Medicare-Medicaid Plan.
NOTES: In response to the COVID-19 Public Health Emergency, CMS did not require MA plans (including MMPs) to submit HEDIS data covering the 2019 measurement year. Effective January 1, 2022, Absolute Total Care became Wellcare Prime.
SOURCE: RTI analysis of 2016 through 2021 HEDIS measures.

Figure 3-6 shows that for medication review (one of the Care for Older Adults measures), Select Health steadily improved performance from 2016 to 2021, with the remaining MMPs having uneven performance over time. Non-SNP MA plans do not report the Care for Older Adults measures, so a national MA plan mean is not available.

Figure 3-6
Medication review (one of the Care for Older Adults measures), 2016–2021: Reported performance rates for Healthy Connections Prime MMPs



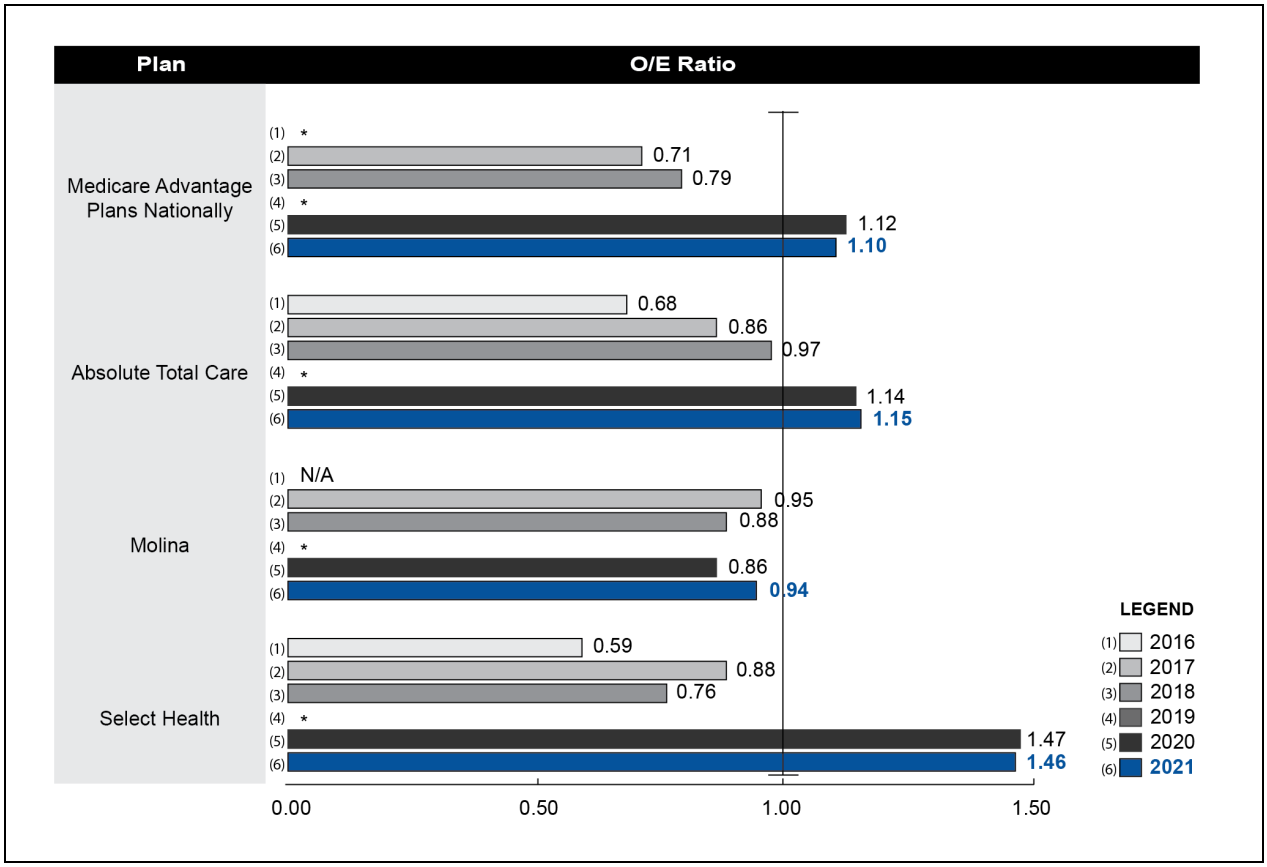
* = data not available; HEDIS = Healthcare Effectiveness Data and Information Set; MA = Medicare Advantage; MMP = Medicare-Medicaid Plan.
NOTES: MA plans nationally did not provide HEDIS data for this measure. In response to the COVID-19 Public Health Emergency, CMS did not require MA plans (including MMPs) to submit HEDIS data covering the 2019 measurement year. Effective January 1, 2022, Absolute Total Care became Wellcare Prime.
SOURCE: RTI analysis of 2016 through 2021 HEDIS measures.

Plan all-cause readmissions for enrollees age 65 or over are reported in ***Figure 3-7*** as an observed-to-expected ratio, whereby an MMP's observed readmission rate is compared to its expected readmission rate given its beneficiary case mix; a value below 1.0 (shown by the vertical line at x = 1 in the figure below) is favorable and indicates that MMPs had fewer readmissions than expected for their populations based on case mix.

Figure 3-7 shows that for 2016-2018, all MMPs reported lower than expected readmissions for enrollees age 65 or over for years where data were available and sample size

requirements were met. This is a favorable finding. Molina was the sole MMP to report lower than expected readmission rate across all years where data were available and sample size requirements were met. The remaining MMPs reported higher readmission rates in 2020 and 2021 than previous years, potentially related to COVID-19.

Figure 3-7
Plan all-cause readmissions, ages 65+, 2016–2021: Reported observed-to-expected ratios for Healthy Connections Prime MMPs



*= data not available; HEDIS = Healthcare Effectiveness Data and Information Set; MA = Medicare Advantage; MMP = Medicare-Medicaid Plan; N/A = not applicable, where the number of enrollees in the MMP's provided HEDIS data available for inclusion in the measure was less than 30, and therefore not reported per RTI's decision rule for addressing low sample size.

NOTES: RTI did not have access to MA plan national HEDIS data for this measure in measurement year 2016. In response to the COVID-19 Public Health Emergency, CMS did not require MA plans (including MMPs) to submit HEDIS data covering the 2019 measurement year. Effective January 1, 2022, Absolute Total Care became Wellcare Prime.

SOURCE: RTI analysis of 2016 through 2021 HEDIS measures.

SECTION 4

Beneficiary Experience

CAHPS survey results and individual beneficiary interview findings indicated enrollees remained satisfied with their Healthy Connections Prime plan.

One of the main goals of the demonstration under the FAI is to improve the beneficiary experience accessing Medicare and Medicaid services. In this section we highlight beneficiary experience with Healthy Connections Prime, and provide information on beneficiary protections, data related to complaints and appeals, and critical incident and abuse reports. For beneficiary experience, we draw on findings from the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey, stakeholder interviews, and 15 individual beneficiary interviews conducted by RTI in late 2022.[9] In response to the PHE, CMS did not require MMPs or MA plans to collect CAHPS data for 2020. See ***Appendix A*** for a full description of these data sources.

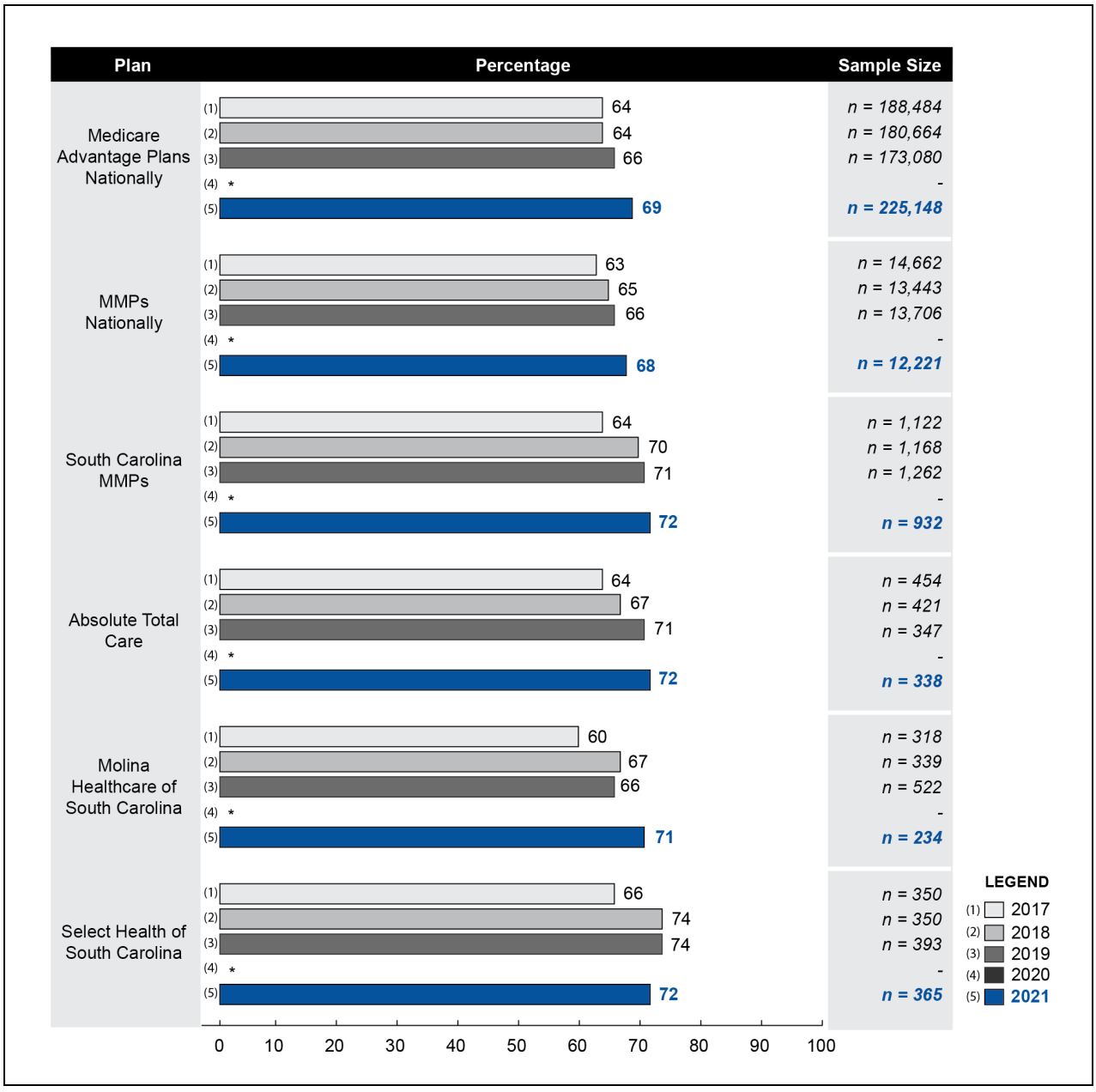
4.1 Impact of the Demonstration on Beneficiaries

4.1.1 Overall Satisfaction with the Demonstration

Overall, enrollees responding to the CAHPS were generally satisfied with Healthy Connections Prime. As shown in ***Figure 4-1***, the percentage of CAHPS respondents who rated their health plan as a 9 or 10 increased overall for all three MMPs from 2017 to 2021. In 2021 the percentages were 71–72 percent for all three MMPs. Respondent ratings among those enrolled in two of the three MMPs with lower satisfaction ratings prior to the PHE rose in 2021, the height of the PHE.

[9] These interviews were conducted outside the reporting period but because this is the last RTI evaluation report the data were included to highlight the beneficiary experience with the demonstration.

Figure 4-1
Healthy Connections Prime beneficiary overall satisfaction, 2017–2021: Percentage of beneficiaries rating their health plan as a 9 or 10



* = data not available; - = sample size data not available; CAHPS = Consumer Assessment of Healthcare Providers and Systems; MA = Medicare Advantage; MMP = Medicare-Medicaid Plan.
NOTE: In response to the COVID-19 Public Health Emergency, CMS did not require MA plans (including MMPs) to collect CAHPS data for 2020. Effective January 1, 2022, Absolute Total Care became Wellcare Prime.
SOURCE: CAHPS data for 2017–2021. This item was case mix adjusted. The CAHPS question used for this item was: "Using any number from 0 to 10, where 0 is the worst health plan possible and 10 is the best health plan possible, what number would you use to rate your health plan?"

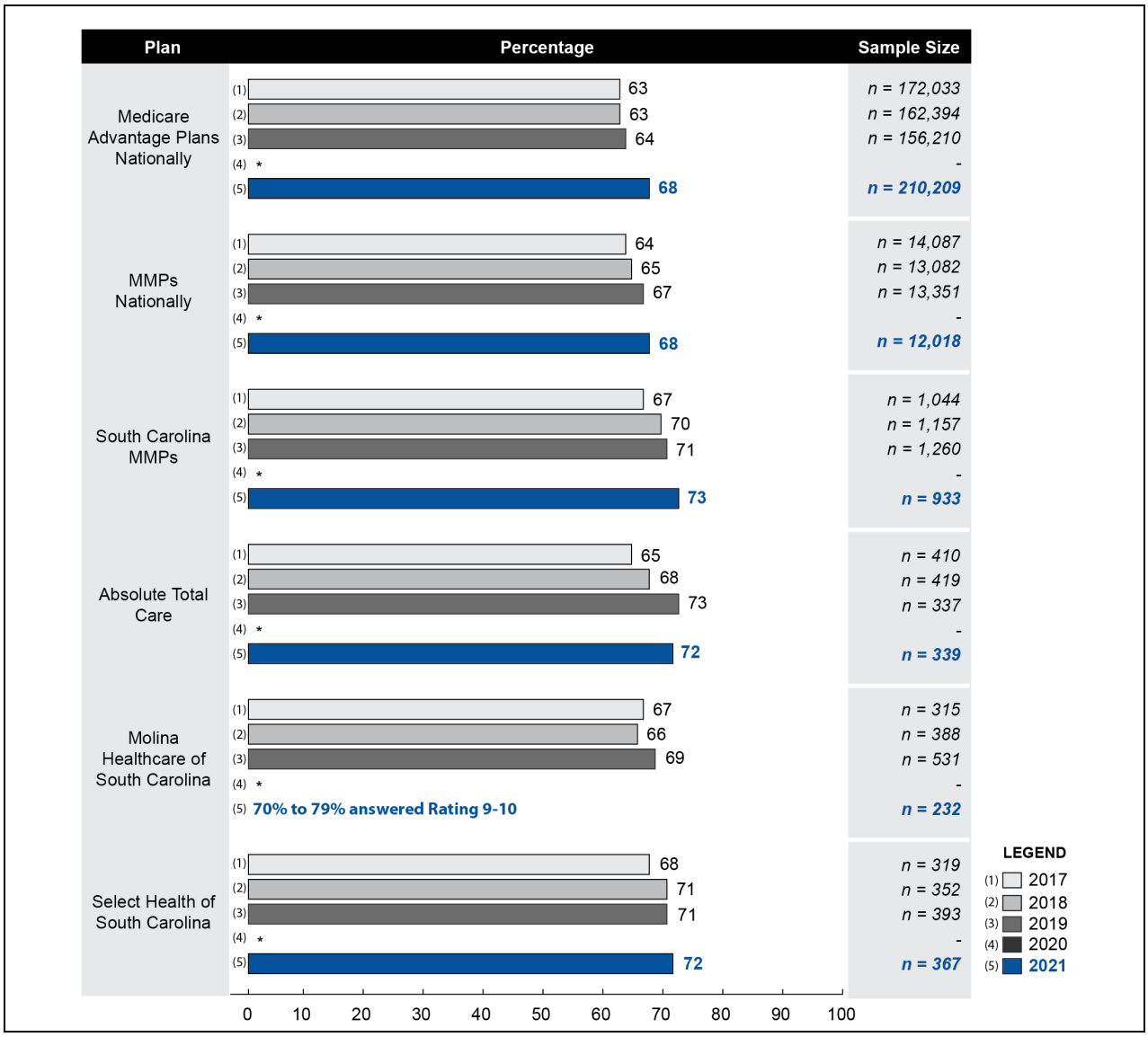
In 2022, individual interview participants also indicated high enrollee satisfaction with the demonstration. Participants attributed their high satisfaction to their plan's coverage, such as no out of pocket costs, good prescription coverage, and access to care and services, as well as the ability to reach someone with questions or needs.

I don't have to pay anything at all for any of my services or medications, except for over the counter. If I have a problem with anything, I have the numbers of several people that I can call to help take care of the problem.

—Individual Beneficiary Interview Participant (2022)

Healthy Connections Prime enrollees who responded to the CAHPS survey reported being satisfied with their prescription drug coverage. ***Figure 4-2*** shows that the percentage of CAHPS respondents who rated their prescription drug plan as a 9 or 10 increased overall for all three MMPs from 2017 to 2021. In 2021 the percentages ranged from 70 to 79 percent for all three MMPs.

Figure 4-2
Healthy Connections Prime beneficiary overall satisfaction, 2017–2021: Percentage of beneficiaries rating their prescription drug plan as a 9 or 10



* = data not available; - = sample size data not available; CAHPS = Consumer Assessment of Healthcare Providers and Systems; MA = Medicare Advantage; MMP = Medicare-Medicaid Plan.

NOTES: In response to the COVID-19 Public Health Emergency, CMS did not require MA plans (including MMPs) to collect CAHPS data for 2020. Instead of reporting "Suppressed" when too few members provided responses, a range is given when possible to provide meaningful information while meeting CMS disclosure requirements. A range is given when the overall number of respondents is greater than or equal to 110, and the measure does not have very low statistical reliability. Effective January 1, 2022, Absolute Total Care became Wellcare Prime.

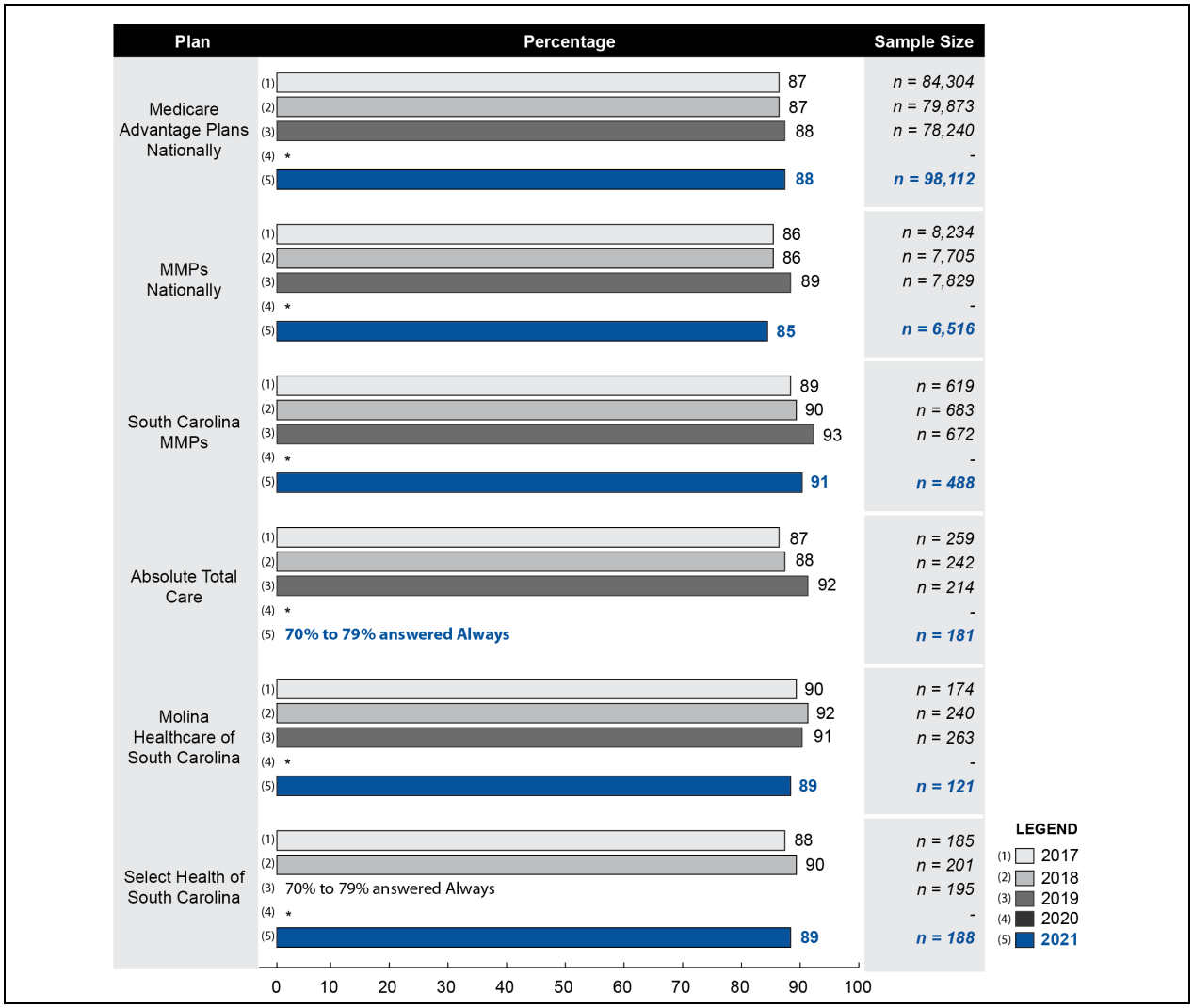
SOURCE: CAHPS data for 2017–2021. This item was case mix adjusted. The CAHPS question used for this item was: "Using any number from 0 to 10, where 0 is the worst prescription drug plan possible and 10 is the best prescription drug plan possible, what number would you use to rate your prescription drug plan?"

4.1.2 Beneficiary Experience with Care Coordination

Individual interview participants shared that care coordination staff were easy to reach and responsive, for example, if a participant needed help with arranging transportation or scheduling appointments. Even participants who reported never speaking to the same person at the MMP said that plan staff were responsive to questions or requests.

CAHPS respondents' experiences with care coordination were also positive during the reporting period. ***Figure 4-3*** shows that the percentage of CAHPS respondents in South Carolina reporting that their health plan usually or always gave them the information they needed was consistently greater than or equal to 87 percent for all MMPs for 2017 through 2021, with a few exceptions (i.e., 2021 for Absolute Total Care and 2019 for Select Health of South Carolina).

Figure 4-3
Healthy Connections Prime beneficiary experience with care coordination, 2017–2021: Percentage of beneficiaries reporting that their health plan usually or always gave them information they needed



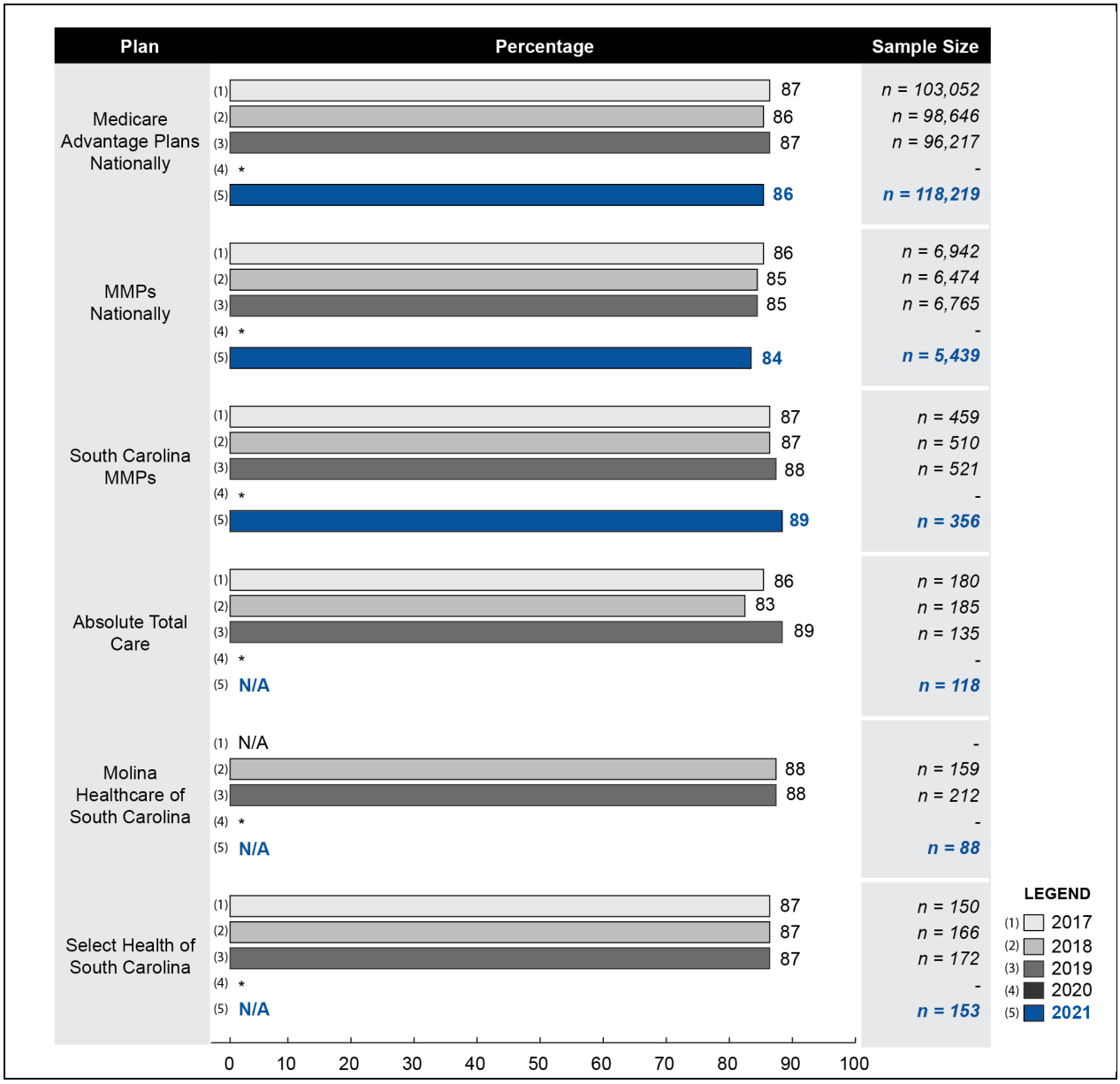
* = data not available; - = sample size data not available; CAHPS = Consumer Assessment of Healthcare Providers and Systems; MA = Medicare Advantage; MMP = Medicare-Medicaid Plan.

NOTES: In response to the COVID-19 Public Health Emergency, CMS did not require MA plans (including MMPs) to collect CAHPS data for 2020. Instead of reporting "Suppressed" when too few members provided responses, a range is given when possible to provide meaningful information while meeting CMS disclosure requirements. A range is given when the overall number of respondents is greater than or equal to 110, and the measure does not have very low statistical reliability. Effective January 1, 2022, Absolute Total Care became Wellcare Prime.

SOURCE: CAHPS data for 2017–2021. The CAHPS question used for this item was: "In the last 6 months, how often did your health plan's customer service give you the information or help you needed?"

Figure 4-4 shows that for two of the three MMPs, the percentage of CAHPS respondents who reported that their personal doctors were usually or always informed about care received from specialists was the same in all years for which data was reported, indicating consistency over time. For the third MMP, this percentage increased overall from 2017 to 2019. Throughout the demonstration period to date, all percentages were greater than or equal to 83 percent. Data was suppressed when too few people responded to an item or had very low statistical reliability for all three MMPs on this measure for calendar year 2021.

Figure 4-4
Healthy Connections Prime beneficiary experience with care coordination, 2017–2021: Percentage of beneficiaries reporting that in past 6 months their personal doctors were usually or always informed about care from specialists



* = data not available; - = sample size data not available; CAHPS = Consumer Assessment of Healthcare Providers and Systems; MA = Medicare Advantage; MMP = Medicare-Medicaid Plan; N/A = "Suppressed," i.e., when too few members provided responses (new as of 2019), or when the results have very low statistical reliability.

NOTE: In response to the COVID-19 Public Health Emergency, CMS did not require MA plans (including MMPs) to collect CAHPS data for 2020. Effective January 1, 2022, Absolute Total Care became Wellcare Prime.

SOURCE: CAHPS data for 2017–2021. The CAHPS question used for this item was: "In the last 6 months, how often did your personal doctor seem informed and up-to-date about the care you got from specialists?"

4.2 Quality and Access to Services

Neither the State nor CMS had heard of any challenges with access to providers, with the exception of some enrollee access challenges for certain specialty providers raised by one MMP in 2021 (see ***Section 3.1, Integration of Medicare and Medicaid***). The Prime Advocate reported that a transportation vendor's name change led to access issues among enrollees attempting to get transportation to their appointments. DMH also identified problems with transportation as posing a challenge to accessing care and services.

Individual interview participants reported being able to continue with their same providers after joining Healthy Connections Prime and being happy with their choice of providers. Most participants also said that their providers were able to meet their needs and it was easy to get needed services. However, a few participants noted challenges accessing dental and other types of specialists (i.e., vision care and pain management). Two participants indicated they needed and did not get in-home supports, such as house cleaning. One participant also raised concerns about outdated provider lists which made accessing needed services challenging.

I've been attempting to get my glasses since March. I just received them. And the lenses are foggy. I had the ability, of course, after arguing with people and driving to different optometrists, to find someone who actually accepted the insurance. But then they didn't have the specific glasses that were available, or they didn't take it anymore. The insurance company just didn't seem to know what was going on. [The MMP] didn't keep track with [providers] on their contact list and [providers] dropped [the insurance]. It was horrible.

—Individual Beneficiary Interview Participant (2022)

All individual interview participants were enrolled in Healthy Connections Prime during the PHE, and most reported being able to receive the care and services they needed then. Several participants described ways in which their MMPs supported them during the PHE: five mentioned getting COVID-19 vaccine information or support to access the vaccine, and one received COVID-19 test kits from the plan. The PHE proved to be a ripe opportunity to expand telemedicine for Healthy Connections Prime enrollees. Six interview participants reported trying telemedicine appointments during the PHE, with most having positive experiences. However, even when given the option, several other participants did not wish to try telemedicine appointments. Two participants said that they preferred in-person appointments.

I have it, I've got Zoom and all that, but no. So far, I just like a one on one if it's possible. If it's not possible, then I do a Zoom call, but so far, I like to be able to look into somebody's eyes and communicate. Where my health is concerned, I haven't gotten to where I need to or even want to do anything on the internet, for a Zoom call or Skype, or what have you. As long as I can get to them, then I prefer to go in-person.

—Individual Beneficiary Interview Participant (2022)

4.3 Beneficiary Protections

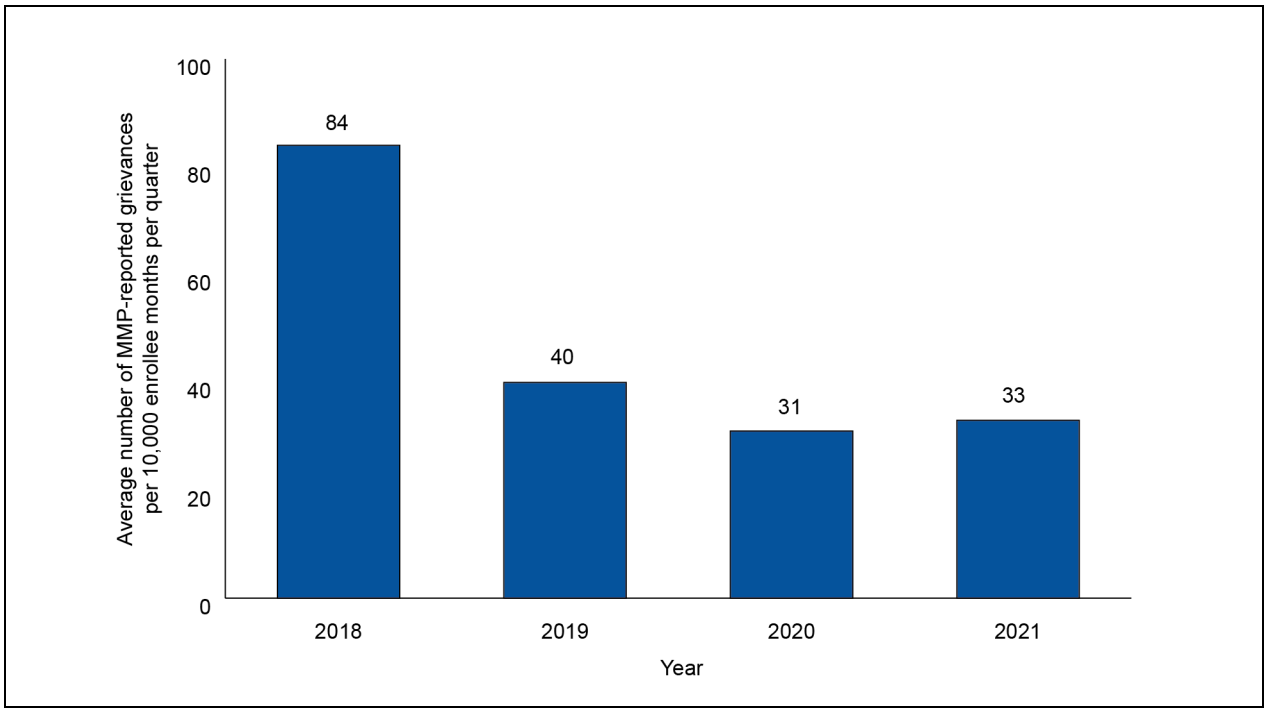
4.3.1 Grievances, Appeals, Complaints, and Critical Incidents

Enrollees have the right to file a grievance with their MMP at any time. A grievance is a complaint or a dispute expressing dissatisfaction with the MMP or a provider, regardless of whether the enrollee is requesting a remedial action. Grievances are resolved at the MMP level. MMPs are required to track and report grievance data.

The way that plan-reported grievance data are analyzed changed in 2018; thus, we report separate data from two periods (2015–2017 and 2018–2021). In 2015 through 2017, data were analyzed per 1,000 enrollees per quarter. Beginning in 2018, data were analyzed per 10,000 enrollee months per quarter. In 2015–2017, the average number of MMP-reported grievances per 1,000 enrollees per quarter remained low, decreasing from 15 in 2015 to 11 in 2017 (data not shown).

In 2018 through 2021, as shown in ***Figure 4-5***, the average number of MMP-reported grievances per 10,000 enrollee months per quarter decreased from a high of 84 in 2018 to a low of 31 in 2020.

Figure 4-5
Healthy Connections Prime average number of MMP-reported grievances per 10,000 enrollee months per quarter, 2018–2021

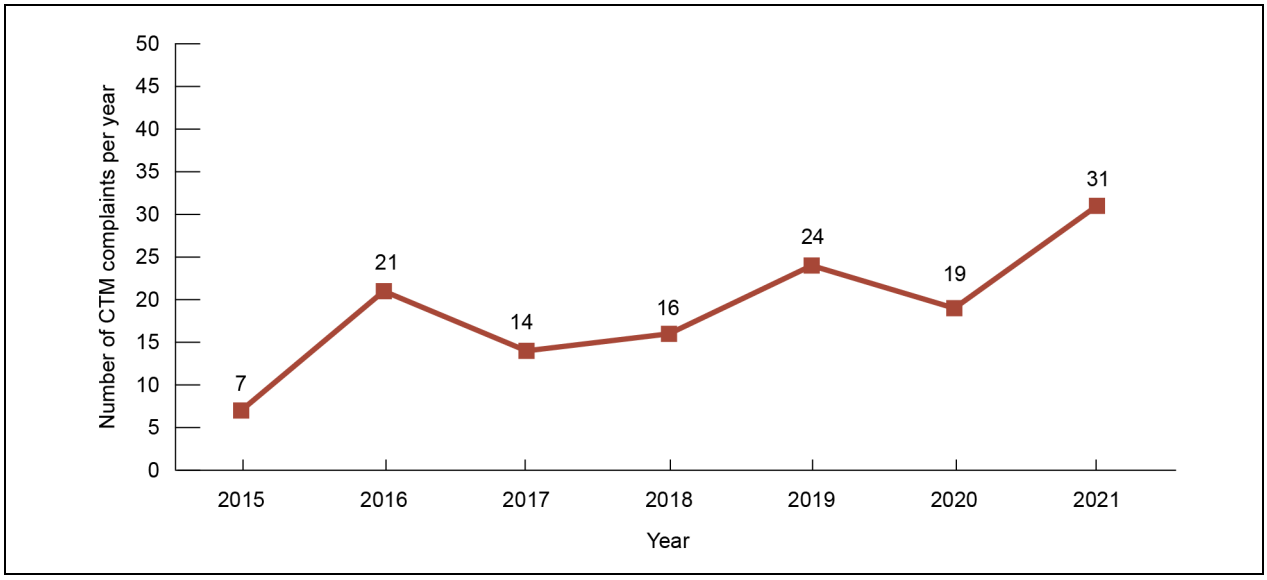


MMP = Medicare-Medicaid Plan.

Figure 4-6 shows total complaints reported to the Complaint Tracking Module (CTM) by SCDHHS or through 1-800-Medicare in 2015–2021. CTM complaints increased over the course of the demonstration from seven in 2015 to 31 in 2021, with variation across years. The highest number of complaints over the course of the demonstration to date were in the benefits, access, and quality of care[10] category, followed by complaints in the provider specific[11] category.

[10] This category is defined as "Beneficiary has difficulty securing Part D prescriptions, beneficiary has difficulty finding a network provider/pharmacy, beneficiary has concerns about the quality of care they have received, or beneficiary has concerns about a denied claim."
[11] This category is defined as "Improper, insufficient or delayed claims payment, or network contracting issue."

Figure 4-6
Healthy Connections Prime number of CTM complaints per year, 2015–2021



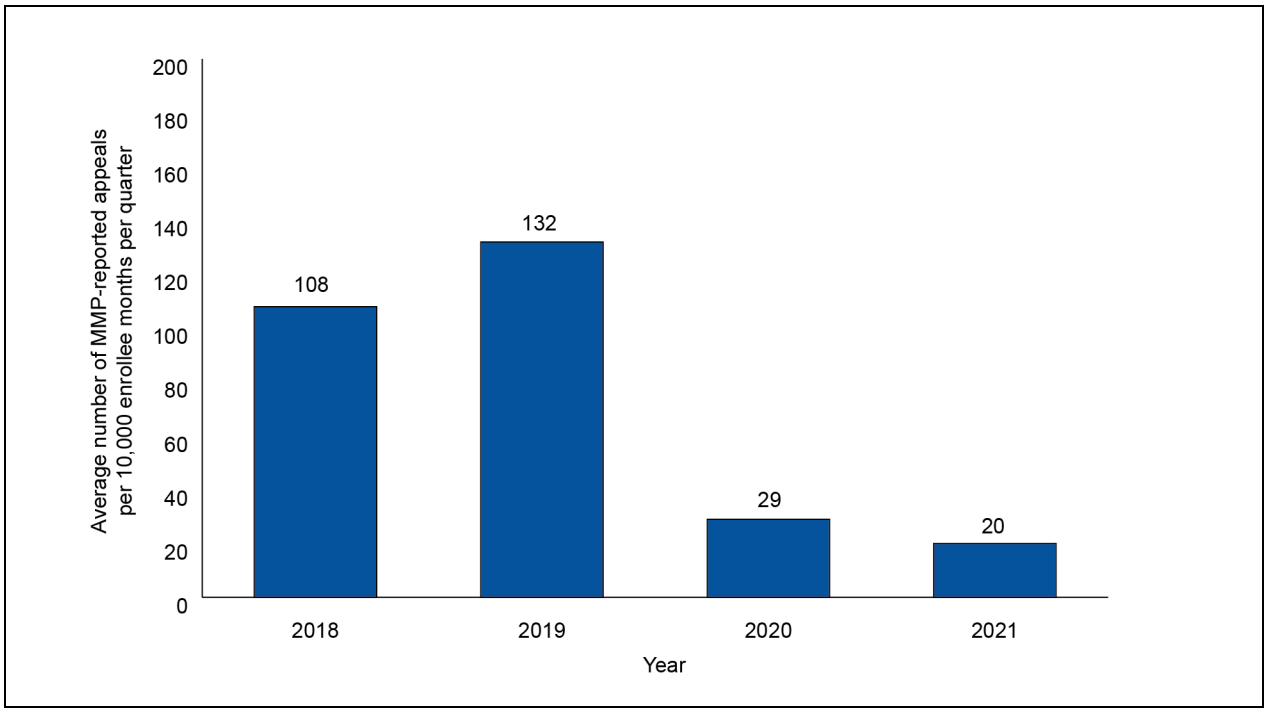
CTM = Complaint Tracking Module.

Enrollees also have the right to appeal an MMP's decision to deny, terminate, suspend, or reduce services. The first level of appeal is filed directly with the MMP. If the MMP denies an appeal involving Medicare-only services, or a service that could be covered by Medicare or Medicaid (i.e., an "overlap" service), the MMP automatically forwards the appeal to the Medicare Independent Review Entity (IRE) for the second level of appeal.

The way that plan-reported appeals data were analyzed changed in 2018; thus, we report separate data from two periods (2015–2017 and 2018–2021). In 2015 through 2017, data were analyzed per 1,000 enrollees per quarter. Beginning in 2018, data were analyzed per 10,000 enrollee months per quarter. In 2015–2017 the average number of MMP-reported appeals per 1,000 enrollees per quarter remained low, ranging from six to 12 (data not shown).

In 2018 to 2021, as shown in ***Figure 4-7,*** the average number of MMP-reported appeals per 10,000 enrollee months per quarter decreased noticeably from 132 in 2019 to 20 in 2021.

Figure 4-7
Healthy Connections Prime average number of MMP-reported appeals per 10,000 enrollee months per quarter, 2018–2021

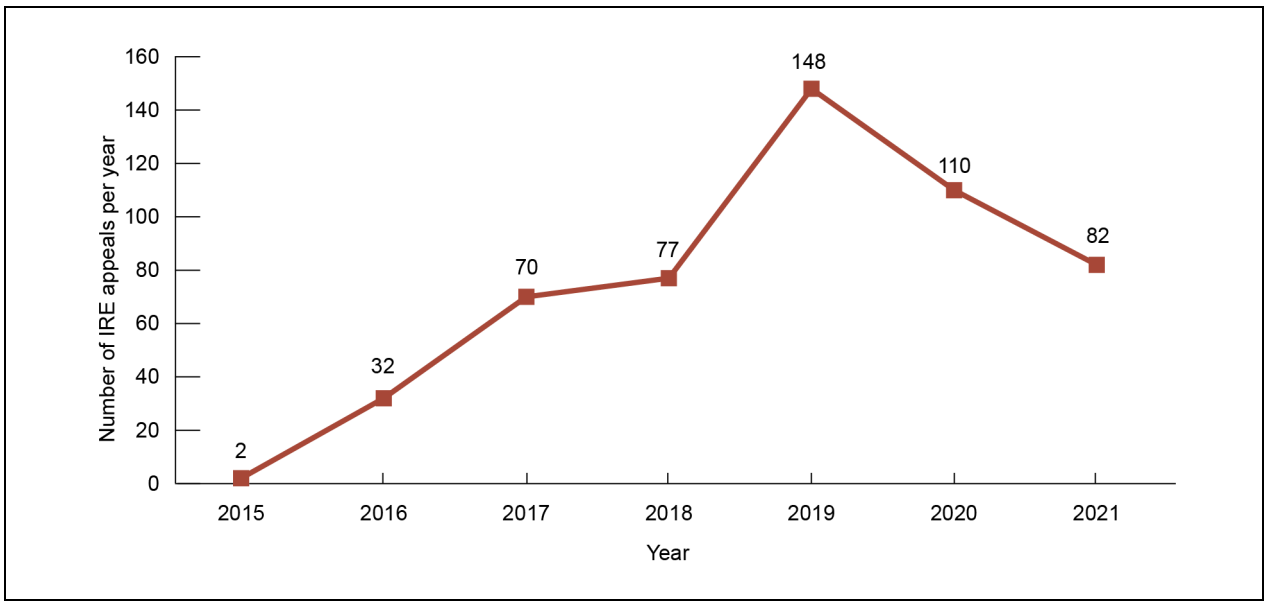


MMP = Medicare-Medicaid Plan.

Figure 4-8 shows the total number of MMP-reported appeals auto-forwarded per year to the IRE in 2015 through 2021. This number steadily increased from two in 2015 to 148 in 2019, before decreasing to 82 in 2021. Of the 521 MMP-reported appeals auto-forwarded to the IRE in 2015 through 2021, 64 percent of the MMP decisions were upheld, 13 percent were overturned or partially overturned, 23 percent were dismissed, and the remainder (less than 1 percent) were withdrawn. The most common category of appeals auto-forwarded to the IRE was for requests for practitioner services.[12]

[12] Examples of practitioner services include physician, chiropractic, dental, prosthetics/orthotics, and vision care.

Figure 4-8
Healthy Connections Prime number of IRE appeals per year, 2015–2021



IRE= Independent Review Entity.

MMPs are also required to report to CMS the number of critical incidents and abuse reports for members receiving LTSS.[13] From 2015 through 2021, the number of critical incidents and abuse reports remained low, ranging from zero to 18 reports per 1,000 Healthy Connections Prime enrollees per quarter.

[13] A critical incident is any actual or alleged event or situation that creates a significant risk of substantial or serious harm to the physical or mental health, safety, or well-being of a member. Abuse refers to willful use of offensive, abusive, or demeaning language by a caretaker that causes mental anguish; knowing, reckless, or intentional acts or failures to act which cause injury or death to an individual or which places that individual at risk of injury or death; rape or sexual assault; corporal punishment or striking of an individual; unauthorized use or the use of excessive force in the placement of bodily restraints on an individual; and use of bodily or chemical restraints on an individual which is not in compliance with Federal or State laws and administrative regulations. https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/FinancialAlignmentInitiative/MMPInformationandGuidance/MMPReportingRequirements

SECTION 5

Demonstration Impact on Service Utilization and Quality of Care

5.1 Methods Overview

The demonstrations under the FAI are intended to shift utilization from inpatient to ambulatory care, from nursing facility (NF) care to HCBS, and to improve quality of care through care coordination activities and the demonstrations' financial incentives. The analyses in this section evaluate the effects of the South Carolina demonstration in demonstration years 1–5 (February 1, 2015–December 31, 2020) on service utilization and quality of care outcomes among South Carolina demonstration eligible beneficiaries.

For this analysis, we used an intent-to-treat (ITT) approach that included all fee-for-service (FFS) Medicare-Medicaid beneficiaries eligible for the demonstration, in addition to those who enrolled in the MMPs. The ITT framework alleviates concerns of selection bias, supports generalizability of the results across the demonstration eligible population, and mimics the real-world implementation of the demonstration. In the analyses presented in this section, enrolled beneficiaries account for approximately 59 percent[14] of all eligible beneficiaries (including FFS beneficiaries and MMP enrollees in the denominator) in demonstration year 5 (2020).

We used a quasi-experimental difference-in-differences (DinD) regression analysis with inverse propensity weighting to estimate the impact of the demonstration on the change in the probability or frequency of service utilization and quality of care outcomes, relative to the comparison group. Our analyses were conducted using Medicare enrollment and FFS claims data, MMP encounter data, Area Health and Resource Files, and the American Community Survey. See ***Appendix D*** for more detail on our analytic methodology.

To help interpret the DinD estimate, we present the DinD estimate as both the absolute change in the probability (for a dichotomous outcome) or frequency (for a count outcome) of the outcome, relative to the comparison group, and a relative percent change of the average outcome value in the comparison group during the demonstration period. Thus, a positive DinD value may correspond to a greater increase or a smaller decrease in the outcome in the demonstration group relative to the comparison group, depending on the estimated trend in the outcome. For example, if the DinD estimate is positive and the trend is a decline in both the demonstration and comparison groups, then the interpretation of the DinD estimate is that the demonstration group had a slower decline in the outcome, relative to the comparison group. Similarly, a negative value on the DinD estimate can result from either a greater decrease or a smaller increase in the outcome depending on the estimated trend in the demonstration group relative to the comparison group.

[14] In this section the percentages of those who are enrolled in an MMP in versus eligible but not enrolled in an MMP are found in ***Appendix D***, ***Table D-1***. These figures may be different than what was reported in ***Section 3.2, Eligibility and Enrollment*** because of the timing for completion and submitting the finder file versus the SDRS. Moreover, the sample used in this analysis excludes eligible beneficiaries who enrolled in Medicare Advantage, reducing the size of the denominator, which results in an increase in the percent of population enrolled. Thus, the percent enrolled in this sample is also different than what is reported in ***Section 6, Demonstration Impact on Cost Savings***.

The forest plots that follow (***Figures 5-1*** through ***5-10***) present a point estimate of the demonstration effect by demonstration year for each outcome, along with 95 percent confidence intervals of each point estimate. A point estimate indicates a statistically significant demonstration effect if neither the upper nor lower bound of its confidence interval crosses zero.

In addition, we discuss the effects of the demonstration on two special populations of interest: beneficiaries who use LTSS and beneficiaries with serious and persistent mental illness (SPMI). The interest in this analysis is to understand whether the demonstration might have had specific impacts on these two special populations. We present the demonstration effects separately for the LTSS users and for non-LTSS users, as well as for those with and without SPMI. We also discuss any interaction effect (the difference between the two effects). This chapter only describes demonstration DinD impact estimates that are statistically significant with 95 percent confidence intervals. Unless otherwise noted when describing year-over-year patterns, estimates that are not statistically significant are not discussed. We re-scaled the monthly and annual DinD estimates to reflect percentage points (for binary outcomes) and frequency per 1,000 beneficiary months (for count outcomes) for ease of interpretation. For a complete list of DinD estimates with 95 and 90 percent confidence intervals, see ***Appendix E***.

The results of this analysis are different from those reported in the Second Evaluation Report due to applying additional exclusion criteria to the study sample. This analysis newly incorporates Medicaid-specific exclusion criteria using the Medicaid Statistical Information Statistics (MSIS) Medicaid Analytic eXtract (MAX) and the Transformed Medicaid Statistical Information System (T-MSIS) Analytic Files (TAF). Medicaid MAX and TAF enrollment and eligibility files that were not incorporated in the second evaluation report due to early data quality concerns with the MAX to TAF transition. It was possible for RTI to provide additional data quality investigation and validation for this evaluation report and Medicaid-derived exclusions were therefore included after further validation of the data. We excluded beneficiaries in the demonstration group who enrolled in Medicaid 1915(c) waivers other than the Community Choices, HIV/AIDS, and Mechanical Ventilation waiver.[15] This exclusion removed approximately 16 to 18 percent of demonstration eligible beneficiaries during the predemonstration period and 6 to 13 percent during the demonstration period who were analyzed in the Second Evaluation Report. Additionally, we removed beneficiaries who qualify for the medically needy Medicaid program from both the comparison group and the demonstration group. This exclusion resulted in removing approximately <1 to 1 percent of the analytic sample in the comparison group from the predemonstration to the demonstration periods and <1 percent of the demonstration group. Moreover, adding demonstration years 4 (2019) and 5 (2020) to the analysis resulted in additional beneficiaries who enrolled in Medicare Advantage during those years and who were thus excluded from the service utilization sample from the entire study period. Those beneficiaries who entered Medicare Advantage during demonstration year 4 (2019) or 5 (2020) resulted in excluding 10 to 25 percent of the demonstration group and 10 to 19 percent of the comparison group during the study period.

[15] We applied Medicaid waiver exclusions to the demonstration group only because 1915(c) waiver programs in the comparison group states do not necessarily target a similar population. Applying these exclusions to the demonstration group only avoids additional biases caused by removing Medicaid waiver enrollees from the comparison group as well.

Finally, similar to the Second Evaluation Report, we allowed observations in the comparison group and in the demonstration group during the baseline period to remain in the analytic sample once entering an institution or hospice, conditional on having at least one prior quarter of demonstration eligibility without those services. We applied a similar criterion to the demonstration group during the demonstration period, but further refined the sample to only include observations identified by the state as eligible for the demonstration during the demonstration period.[16] This additional criterion resulted in a small percentage (2 to 5 percent by demonstration period) of beneficiaries removed from the demonstration group who were otherwise included in the Second Evaluation Report.

5.2 Demonstration Impact on Service Utilization Among Eligible Beneficiaries

Overall, the probability of inpatient admissions decreased by 16.8 percent, the probability of SNF use decreased by 21.6 percent, and the probability of long-stay NF use decreased by 18.0 percent among the demonstration group relative to the comparison group. There were no demonstration impacts on the probability of emergency department (ED) visits or the number of physician visits.

5.2.1 Cumulative Impact Over Demonstration Years 1–5

The demonstration is intended to increase use of outpatient care and HCBS, while decreasing inpatient care, ED visits, and long-stay NF use through improvements in access to the full range of medical, behavioral health and LTSS, and improvements in quality of care and care coordination.

Table 5-1 shows the cumulative impacts of the demonstration on service utilization. The monthly probabilities of inpatient and SNF admissions, as well as the probability of annual long-stay NF use decreased in the demonstration group relative to the comparison group, all favorable findings for the demonstration. There was no demonstration effect on the monthly probability of ED visits or monthly number of physician visits.[17]

[16] We were unable to apply State-derived eligibility criteria for the comparison group, because the required data were not available.

[17] These results are different than what was reported in the Second Evaluation Report and should be interpreted with caution. Prior to 2018, the Integrated Data Repository (IDR) had included chart reviews in final action claims. We originally decided to continue to include chart reviews after 2018 to be consistent with previous years. We have since decided to remove chart reviews from MMP encounter lines to avoid overcounting E&M visits.

Table 5-1
Cumulative demonstration impact on select service utilization measures in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Group	Adjusted mean for predemonstration period	Adjusted mean for demonstration period	Regression-adjusted DinD estimate (95% confidence interval)	Relative difference (%)	*p*-value
Monthly probability of any inpatient admission (%)	Demonstration	3.46	2.45	−0.56*** (−0.72, −0.41)	−16.8	<0.0001
	Comparison	3.86	3.35			
Monthly probability of any ED visit (%)	Demonstration	5.29	5.34	−0.08 (−0.35, 0.19)	NS	0.5523
	Comparison	5.75	5.90			
Monthly number of physician E&M visits per 1,000 beneficiaries	Demonstration	705.54	774.40	−13.37 (−40.74, 14.00)	NS	0.3385
	Comparison	787.19	878.61			
Monthly probability of any SNF admission (%)	Demonstration	0.83	0.66	−0.25*** (−0.34, −0.16)	−21.6	<0.0001
	Comparison	1.08	1.16			
Annual probability of any long-stay NF use (%)	Demonstration	2.55	4.18	−1.46*** (−2.18, −0.73)	−18.0	<0.0001
	Comparison	3.88	8.11			

*p < 0.05; **p < 0.01; ***p < 0.001
DinD = difference-in-differences; ED = emergency department; E&M = evaluation and management; NF = nursing facility; NS = not statistically significant; SNF = skilled nursing facility.
NOTES: The adjusted mean is the regression-adjusted predicted probability or number of events for the predemonstration and demonstration periods for the demonstration and comparison groups. The relative difference is calculated by dividing the DinD estimate (column heading Regression-adjusted DinD estimate) by the predicted average for the comparison group in the demonstration period (column heading Adjusted mean for demonstration period). The magnitude of a relative difference could be large when the underlying denominator is small. In such cases, the relative difference should be interpreted with caution. Green and red color-coded shading indicates where the direction of the DinD estimate was favorable or unfavorable; green indicates favorable estimates.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data, and Minimum Data Set data.

Inpatient Admissions

- The cumulative effect of the demonstration on the monthly probability of inpatient admissions was a decrease of 0.56 percentage points relative to the comparison group. This monthly decrease represents a difference of 16.8 percent relative to the probability of inpatient admissions among the comparison group during the demonstration period (which had an adjusted mean of 3.35 percent). While the mean probability of monthly inpatient admissions decreased for both groups between the predemonstration and demonstration periods, the probability decreased more rapidly among the demonstration group (as shown in the adjusted means columns for both groups).
  - The decrease in inpatient admissions is consistent with the goals of the demonstration. Similar to what was described in the Second Evaluation Report, ***Section 3.3, Care Coordination***, MMPs reported a high percentage of enrollees with a care plan completed from demonstration year 1 through demonstration year

3 (2018); however, this rate declined through 2020 (see ***Section 3.3, Care Coordination***, in this report). Among enrollees, the percent of any monthly inpatient admissions declined from 2.4 to 1.9 from demonstration year 1 through 5, suggesting that this finding is in part driven by utilization among enrollees (see ***Appendix E, Table E–7***).[18]

SNF Admissions

- The cumulative effect of the demonstration on the probability of a SNF admission was a favorable decrease of 0.25 percentage points. This is a 21.6 percent decrease relative to the probability of a SNF admission among the comparison group during the demonstration period (1.16 percent).
  - ***Table 5-1*** illustrates the adjusted percent of demonstration eligible beneficiaries with any SNF admissions declined only slightly from predemonstration to the demonstration period (0.83 to 0.66 percent), however, the adjusted percent of SNF use among the comparison group increased from 1.08 percent to 1.16 percent over the same period suggesting that the demonstration was successful in helping to decrease post-acute care use. These findings correspond with a cumulative reduction in inpatient use described above and may reflect a decline in the need for post-acute services among the demonstration population over time.

Long-stay NF Use

- The cumulative effect of the demonstration on the annual probability of any long-stay NF use was a decrease of 1.46 percentage points relative to the comparison group. This is an 18.0 percent decrease relative to the probability of annual long-stay NF use among the comparison group in the demonstration period (8.11 percent). This estimate is driven by a greater increase in the predicted probability of any long-stay NF use in the comparison group (3.88 to 8.11 percent) relative to the increase observed in the demonstration group (2.55 to 4.18 percent).
  - Caution should be used when interpreting the findings that long-stay NF use decreased among the demonstration eligible population relative to the comparison group. Beneficiaries residing in a NF were excluded from the demonstration eligible population,[19] and these estimates are consequently biased in favor of the demonstration group. Specifically, although our study sample includes beneficiaries residing in an NF conditional on being eligible for the demonstration in a previous quarter, the State finder file applied a more stringent exclusion of these beneficiaries during the demonstration period. Consequently, the data showed a substantial drop in NF use in the demonstration group, from 4.2 percent

[18] To estimate the contribution of MMP enrollment on the overall DinD estimate, relative to the eligible non-enrolled observations, we included an "enrollment" term in the main regression model. We expected that the coefficient and marginal effect of the "enrollment" term on the outcome to be in same direction and statistical significance of the overall effect. The result of this model supports our findings, that those who were enrolled had an impact estimate that was in the same direction and similar magnitude as the overall DinD estimate.

[19] This information was not available for the comparison group. While we excluded beneficiaries initially residing in an NF in the comparison group and the demonstration group during the baseline period, the State finder file excludes those in an NF more stringently than can be applied in the comparison group during the demonstration period.

in predemonstration year 2 to 1.3 percent in demonstration period 2, which then increased to 4.2 percent during demonstration period 5 (see ***Appendix E, Table E-6***).

Furthermore, these results may be impacted by the service use and health characteristics of the demonstration enrolled population. The ITT evaluation design mitigates selection bias due to voluntary enrollment in the demonstration. However, if the demonstration enrolls beneficiaries who have lower service utilization rates and lower mortality than beneficiaries who are eligible but not enrolled, then such favorable selection may impact the likelihood of observing any favorable demonstration impacts on these measures. To determine whether these health and service use characteristics are evident in the demonstration enrolled group, we conducted the following supplemental analyses:

- A cohort analysis comparing predemonstration utilization outcome trends among beneficiaries who were enrolled at any point during demonstration year 1 to beneficiaries who were eligible but never enrolled in demonstration year 1.
- A cross-sectional analysis of mortality rates among the enrolled, eligible but not enrolled, and the comparison group during the entire study period.

Findings from these supplemental analyses are included in ***Appendix G***, which indicate that the demonstration year 1 enrolled cohort had lower inpatient use, ED use, and SNF use during the predemonstration period compared to the cohort that was eligible but never enrolled in demonstration year 1. Enrolled beneficiaries also had lower rates of mortality during the demonstration period than the eligible but not enrolled group. These findings provide some evidence of favorable selection into the demonstration. While we hypothesize that lower rates of service use among the enrolled population may make it more difficult to observe further decreases, our findings showing favorable decreases in inpatient and SNF use do not support this hypothesis.

5.2.2 Demonstration Impact in Each Demonstration Year

Figures 5-1 through ***5-5*** show annual effects of the demonstration on all-cause inpatient admissions, ED visits, physician visits, SNF admissions, and long-stay NF use, respectively, with the cumulative effects included as points of comparison. These annual impact estimates indicate that the South Carolina demonstration decreased the probability of any monthly inpatient admission in all demonstration years and decreased the number of physician visits in both demonstration years 1 and 2 but did not have a significant effect on physician visits in demonstration years 3 through 5. The probability of monthly ED visits decreased in demonstration year 1 but increased in demonstration year 5. Though point estimates for demonstration years 2 through 4 were not statistically significant, ED visits appear to be consistently increasing year over year. The demonstration also decreased the probability of SNF admissions in each year, though the estimate for demonstration year 4 was not statistically significant. Furthermore, the demonstration decreased the probability of any long-stay NF use in all years except for demonstration year 3.

- The South Carolina demonstration decreased the probability of inpatient admissions in demonstration years 1 through 5 by 0.72, 0.58, 0.65, 0.51, and 0.26 percentage

points per month per beneficiary, respectively, relative to the comparison group (***Figure 5-1***).

  - This decrease is consistent with the goals of the South Carolina demonstration. While the yearly magnitude of the decrease has varied throughout the demonstration, the demonstration has achieved a favorable outcome in all years.

- The probability of any ED use decreased by 0.47 percentage points per month per beneficiary in demonstration year 1 but increased by 0.35 percentage points per month per beneficiary in year 5, relative to the comparison group (***Figure 5-2***).
  - This decrease in demonstration year 1 is consistent with the goals of the South Carolina demonstration. However, the statistically significant increase in year 5 follows a trend of progressively increasing ED use rates in the demonstration group relative to the comparison group beginning in year 2. Indeed, ***Appendix E, Table E-4*** shows a one-year decline from 5.5 to 5 percent from predemonstration year 2 to demonstration year 1 among the demonstration group, in part driven by an ED use rate of 4.6 percent among enrollees in demonstration year 1 (see ***Appendix E, Table E-7***), while there was little change in the percent with ED use in the comparison group (from 6.3 percent to 6.4 percent). Subsequent years show small increases in ED use among the demonstration group from demonstration year 1 to 4 (5 to 5.4 percent), while utilization among the comparison group decreased from 6.4 to 5.8 percent during that period.

- The South Carolina demonstration decreased the number of physician E&M visits in demonstration years 1 and 2 by 25.6 and 53.8 visits per 1,000 beneficiary months, respectively, relative to the comparison group (***Figure 5-3***).[20]
  - The findings in demonstration years 1 and 2 are unfavorable. However, while the magnitudes of the estimates in demonstration years 3 through 5 are not statistically significant, the yearly point estimates suggest a trend toward favorable outcomes over time. These findings may reflect the challenge care coordinators had in reaching MMP enrollees. Early in the demonstration, enrollees in focus groups identified some concerns around access to care, particularly access to a primary care physician (see ***Section 5.2.3, Medical and Specialty Services*** in the First Evaluation Report). This may help explain some initial challenges to accessing primary care during the first 2 demonstration years.

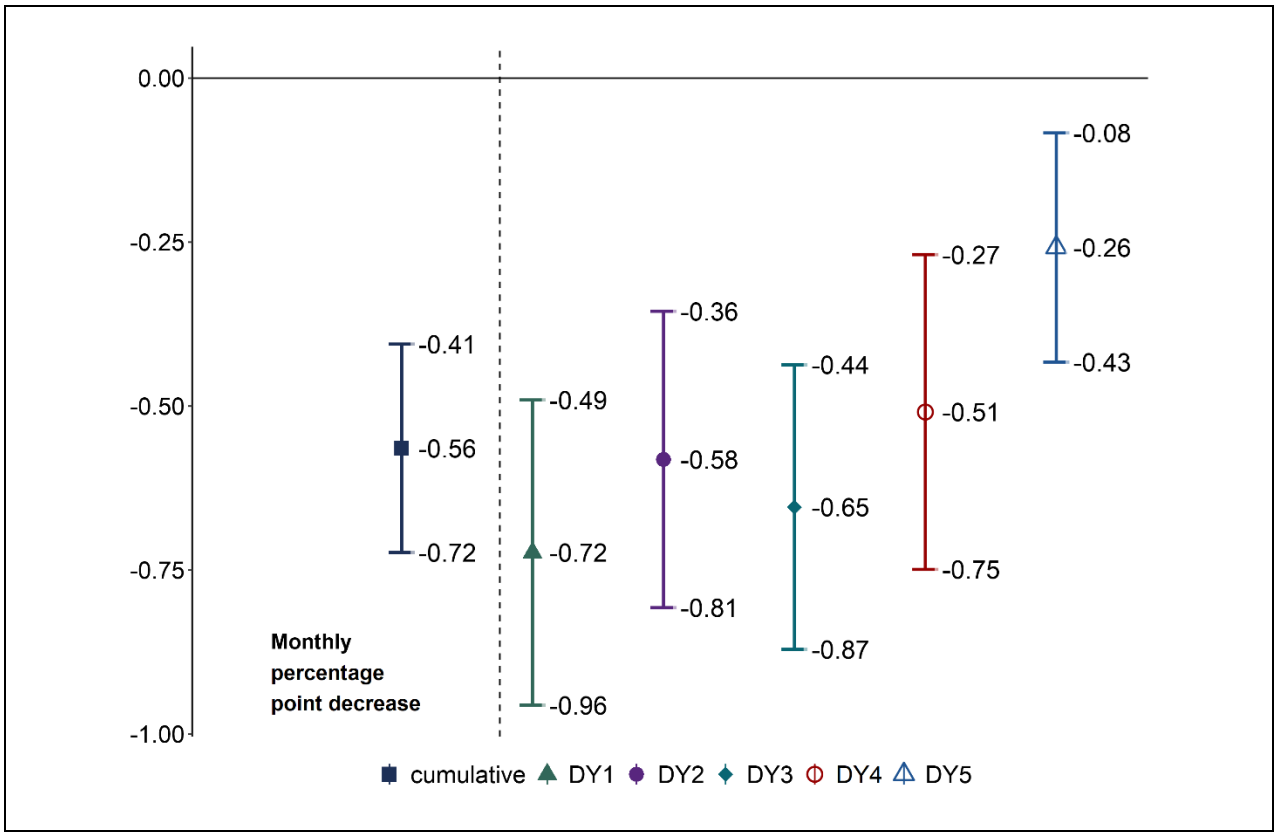
- The South Carolina demonstration decreased the probability of SNF admissions in demonstration years 1 through 3 by 0.36, 0.27, and 0.19 percentage points per month per beneficiary, respectively, relative to the comparison group (***Figure 5-4***). Additionally, in demonstration year 5, the demonstration decreased the probability of SNF admissions by 0.26 percentage points per month per beneficiary, relative to the comparison group. These findings correspond with the overall decline in inpatient admissions among the demonstration group, relative to the comparison group, which

[20] Impact estimates from demonstration years 1 through 3 are different than what was reported in the Second Evaluation Report. Prior to 2018, the IDR had included chart reviews in final action claims. We since have removed chart reviews from MMP encounter lines to avoid over counting E&M visits.

may reflect a decline in the need for post-acute services among the demonstration population over time.

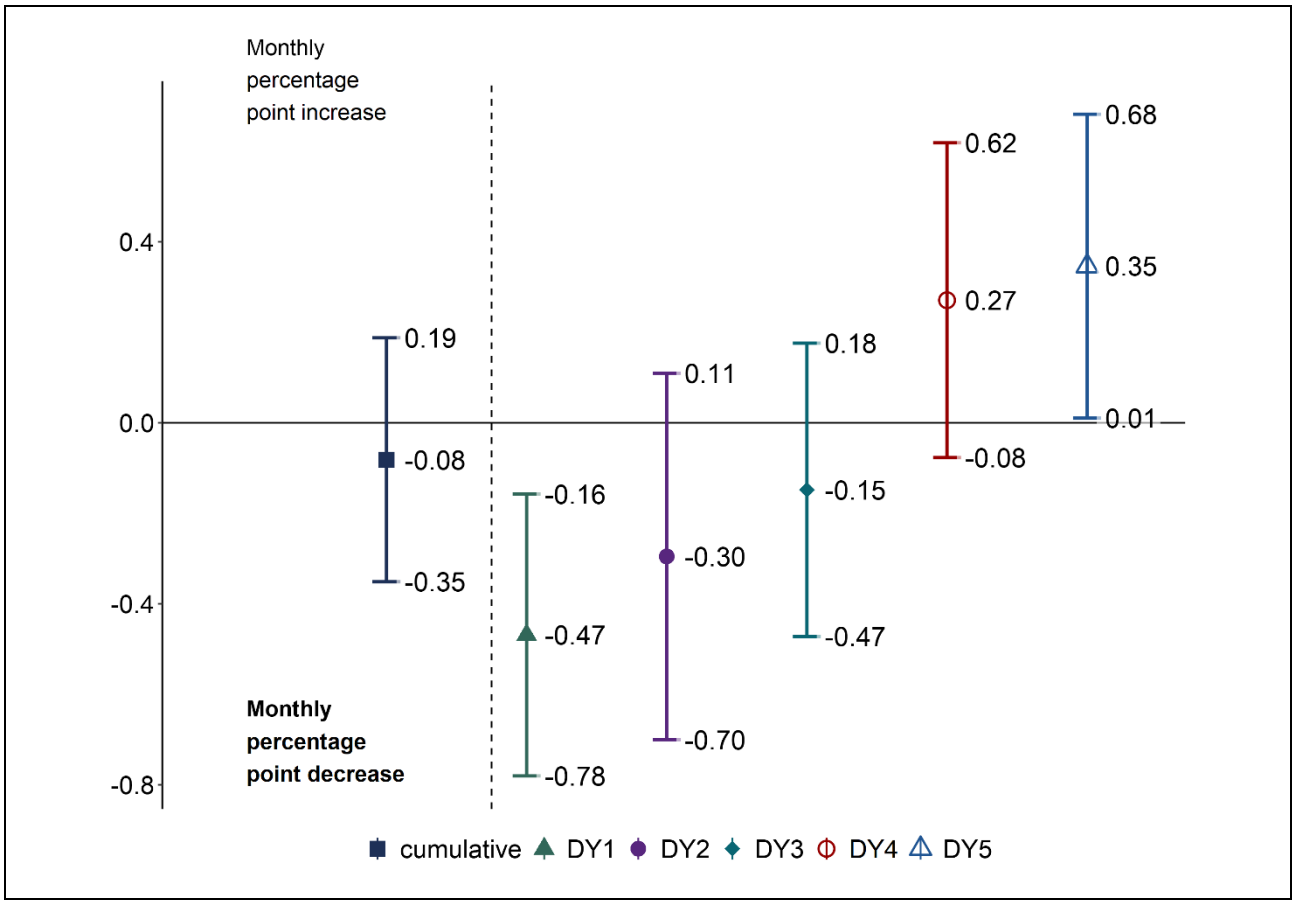
- The demonstration decreased the probability of any long-stay NF use in demonstration years 1 and 2, relative to the comparison group, by 1.42 and 2.85 percentage points per year per beneficiary, respectively, relative to the comparison group (***Figure 5-5***). Additionally, the demonstration decreased the annual probability of any long-stay NF use in demonstration years 4 and 5 by 1.16 and 1.43 percentage points per beneficiary, respectively, relative to the comparison group.
  - As noted in ***Section 5.2.1, Cumulative Impact Over Demonstration Years 1–5***, caution should be used when interpreting these results as favorable. These results may be biased in favor of the demonstration group due to the State finder file exclusion of long-stay NF users as eligible for the demonstration. That said, care transition planning was a key feature of MMP care coordination practices. Among those in HCBS waivers, care managers worked with a waiver case manager to ensure the beneficiary's medical and long-term care needs were being met (see ***Section 4.1.2, HCBS Waiver Services and Coordination*** of the First Evaluation Report). MMP care managers used an integrated communication system, Phoenix, to communicate with waiver care coordinators and document and communicate the transitions of the beneficiary with the interdisciplinary care team (see ***Section 4.1.2, Transitional Care*** of the First Evaluation Report).

Figure 5-1
Cumulative and annual demonstration effects on inpatient admissions in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020



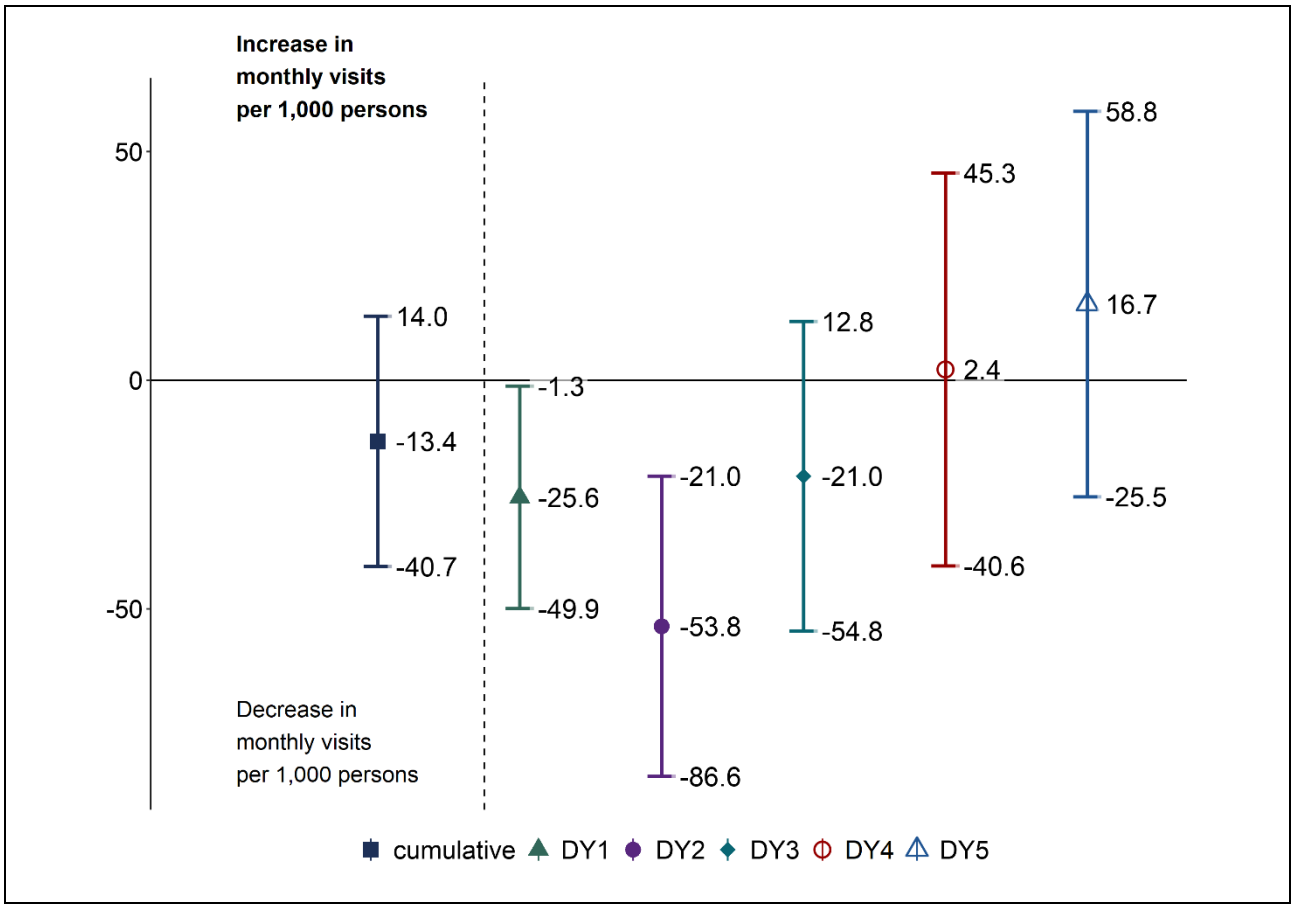
DY = demonstration year.
NOTES: 95 percent confidence intervals are shown. The expected direction of effect is a decrease.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

Figure 5-2
Cumulative and annual demonstration effects on ED visits in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020



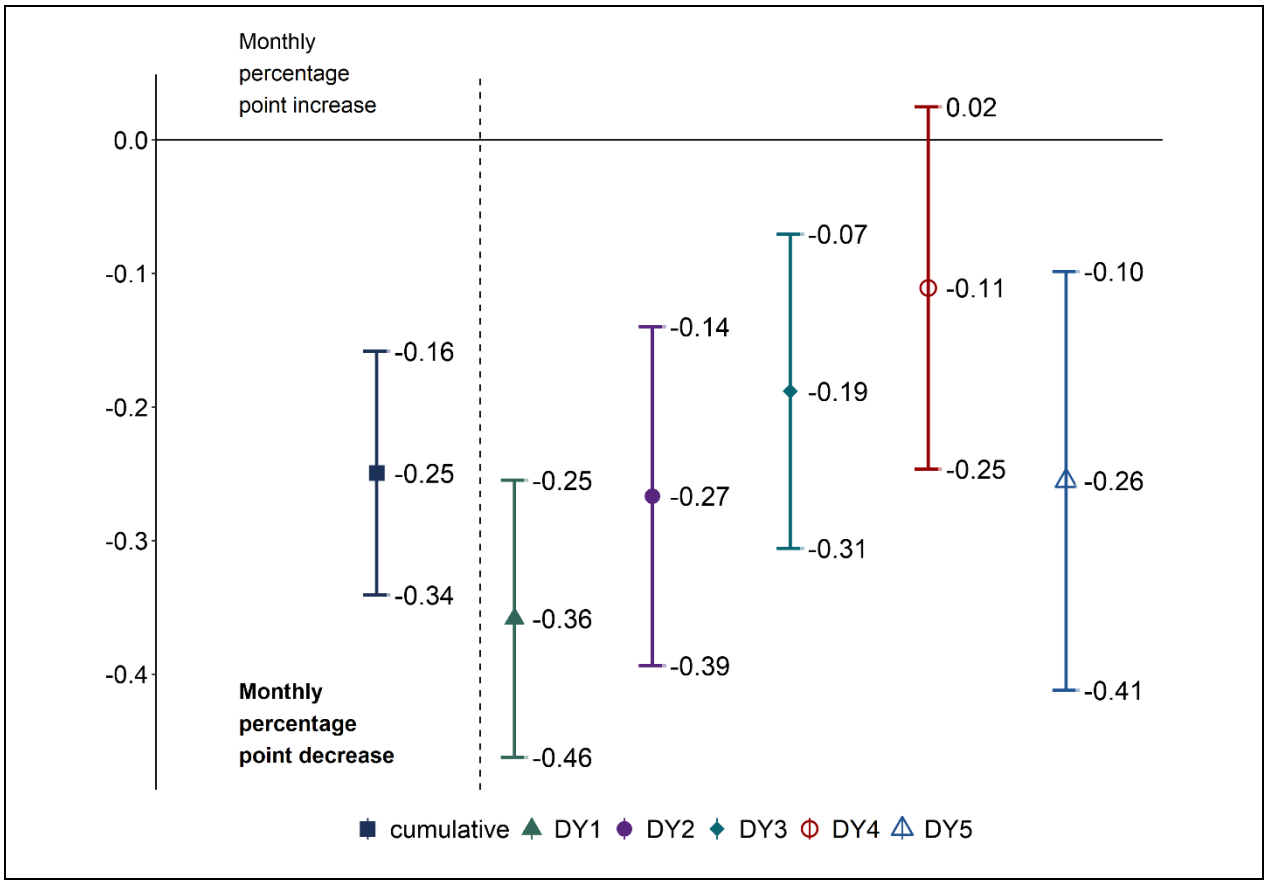
DY = demonstration year; ED = emergency department.
NOTES: 95 percent confidence intervals are shown. The expected direction of effect is a decrease.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

Figure 5-3
Cumulative and annual demonstration effects on physician E&M visits in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020



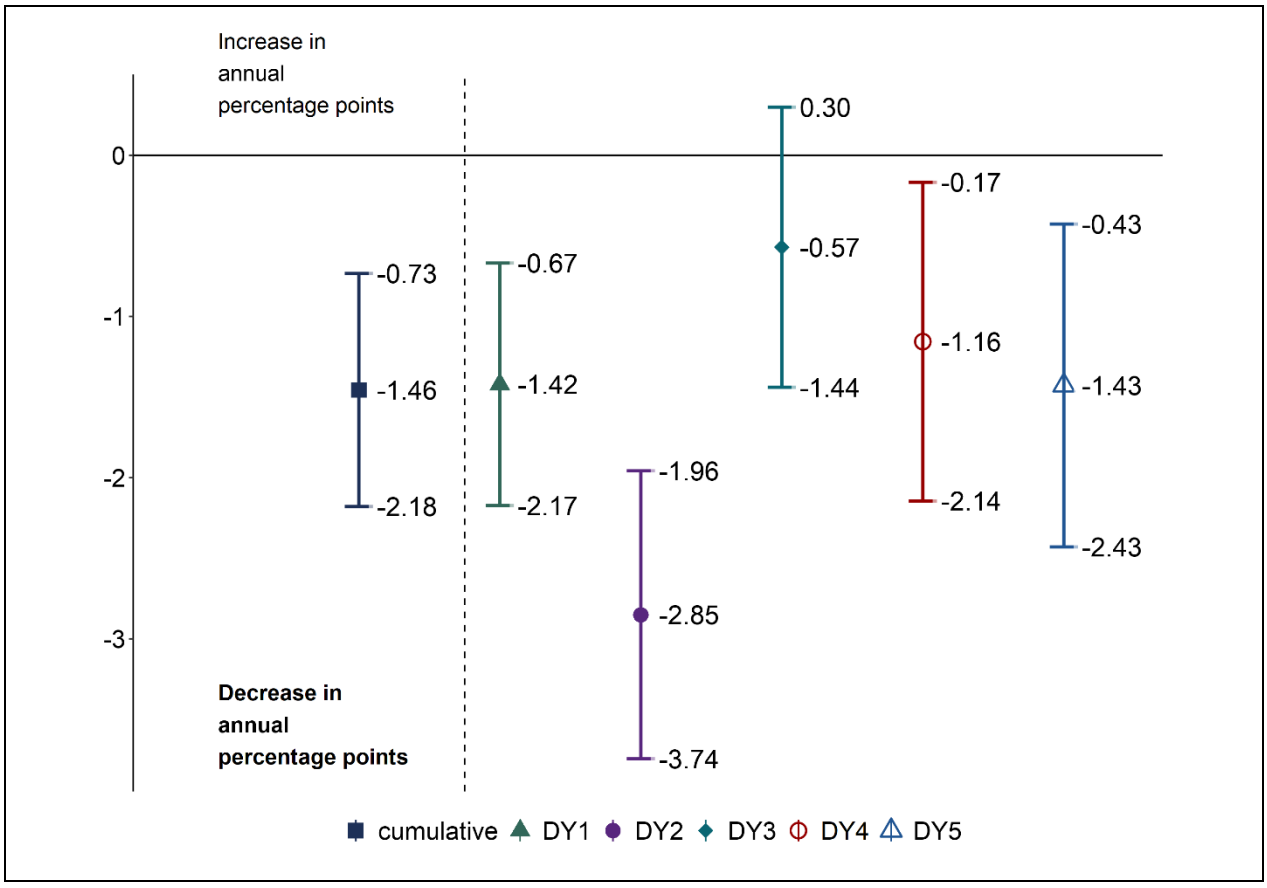
DY = demonstration year; E&M = evaluation and management.
NOTES: 95 percent confidence intervals are shown. The expected direction of effect is an increase.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

Figure 5-4
Cumulative and annual demonstration effects on SNF admissions in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020



DY = demonstration year; NF = nursing facility.
NOTES: 95 percent confidence intervals are shown. The expected direction of effect is a decrease.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

Figure 5-5
Cumulative and annual demonstration effects on long-stay NF use in South Carolina demonstration years 1–5, February 1, 2015–December 31, 2020



DY = demonstration year; NF = nursing facility.
NOTES: 95 percent confidence intervals are shown. The expected direction of effect is a decrease.
SOURCE: RTI International analysis of Minimum Data Set data.

5.3 Demonstration Impact on Quality of Care Among Eligible Beneficiaries

The demonstration resulted in a 21.2 and 21.6 percent decrease in the probability of ambulatory care sensitive condition (ACSC) admissions, overall and chronic, respectively, relative to the comparison group. Additionally, the demonstration led to a 13.0 percent decrease in all-cause 30-day readmissions per 1,000 discharges, relative to the comparison group.

5.3.1 Cumulative Impact Over Demonstration Years 1–5

The South Carolina demonstration is expected to improve quality of care as a result of care coordination and increased access to needed services. The demonstration resulted in decreases in the probabilities of both overall and chronic ACSC admissions, as well as a decrease

in the number of all-cause 30-day readmissions, relative to the comparison group. These are all favorable findings for the demonstration. ***Table 5-2*** displays the cumulative impact and adjusted means for these measures.

Table 5-2
Cumulative demonstration impact on select quality of care measures in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Group	Adjusted mean for predemonstration period	Adjusted mean for demonstration period	Regression-adjusted DinD estimate (95% confidence interval)	Relative difference (%)	*p*-value
Monthly number of preventable ED visits per 1,000 beneficiaries	Demonstration	29.38	31.48	0.81 (−1.10, 2.71)	NS	0.4078
	Comparison	32.72	34.11			
Monthly probability of any ACSC admission, overall (%)	Demonstration	0.81	0.55	−0.16*** (−0.25, −0.08)	−21.2	0.0001
	Comparison	0.87	0.77			
Monthly probability of any ACSC admission, chronic (%)	Demonstration	0.51	0.35	−0.10** (−0.17, −0.03)	−21.6	0.0061
	Comparison	0.52	0.46			
Probability of 30-day follow-up after mental health discharge (%)	Demonstration	25.65	24.91	4.77 (−3.44, 12.98)	NS	0.2549
	Comparison	32.86	26.68			
Number of all-cause 30-day readmissions per 1,000 discharges	Demonstration	186.07	156.72	−25.09* (−49.59, −0.60)	−13.0	0.0447
	Comparison	198.67	193.72			

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
ACSC = ambulatory care sensitive condition; DinD = difference-in-differences; ED = emergency department; NS = not statistically significant.
NOTES: The adjusted mean is the regression-adjusted predicted probability or number of events for the predemonstration and demonstration periods for the demonstration and comparison groups. The relative difference is calculated by dividing the DinD estimate (column heading Regression-adjusted DinD estimate) by the predicted average for the comparison group in the demonstration period (column heading Adjusted mean for demonstration period). The magnitude of a relative difference could be large when the underlying denominator is small. In such cases, the relative difference should be interpreted with caution. Green color-coded shading indicates where the direction of the DinD estimate was favorable.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

ACSC Admissions

- The South Carolina demonstration resulted in a 0.16 and 0.10 percentage point decrease in the monthly probability of ACSC admissions (overall and chronic, respectively), relative to the comparison group. The monthly decrease represents a difference of 21.2 percent relative to the probability of overall ACSC admissions in the comparison group during the demonstration period (0.77 percent), and a

difference of 21.6 percent relative to the probability of chronic ACSC admissions in the comparison group during the demonstration period (0.46 percent).[21]

All-cause 30-day Readmissions

- The South Carolina demonstration was associated with a decrease in the number of all-cause 30-day readmissions per 1,000 discharges by 25.09 readmissions relative to the comparison group. The decrease in the demonstration group represents a 13.0 percent difference relative to the number of all-cause 30-day readmissions per 1,000 discharges in the comparison group during the demonstration period (***Table 5-2***).
  - These favorable finding are consistent with the goals of the demonstration but are somewhat surprising given the implementation challenges noted by State and MMP officials. As described in the Second Evaluation Report (see ***Section 3.3.4, Care Transitions***), a CMT member reported in 2018 that care coordinators were not always aware of hospitalizations, and in 2020 one MMP reported that awareness of enrollees' discharge dates was a care coordination challenge. These challenges made it difficult to facilitate care transitions, and thus lower hospital readmissions. That said, ***Figure 3-7*** in ***Section 3.6, Quality of Care***, illustrates that MMPs had favorable observed-to-expected ratios on all-cause 30-day readmissions through demonstration year 3 (2019 was not reported) which suggests that MMPs had lower than expected readmissions given the risk characteristics of the enrollees.

5.3.2 Demonstration Impact in Each Demonstration Year

Figures 5-6 through 5-10 show the demonstration's annual effects on 30-day readmissions, preventable ED visits, ACSC admissions (overall), ACSC admissions (chronic), and 30-day follow-up post mental health discharge, with the cumulative impact also shown as a point of comparison. These annual impact estimates indicate that the South Carolina demonstration decreased the number of 30-day readmissions in demonstration year 4, decreased the probability of overall ACSC admissions in all demonstration years, and decreased the probability of chronic ACSC admissions in demonstration years 2 through 4. However, the demonstration increased the monthly number of preventable ED visits per 1,000 persons in demonstration years 4 and 5.

- The demonstration was associated with a statistically significant decrease in the number of 30-day readmissions in demonstration year 4 by 35.3 readmissions per 1,000 discharges, relative to the comparison group (***Figure 5-6***). Results for the other demonstration years suggest decreases as well, though the point estimates were not statistically significant. ***Appendix E, Table E-5*** shows that the lowest risk-adjusted

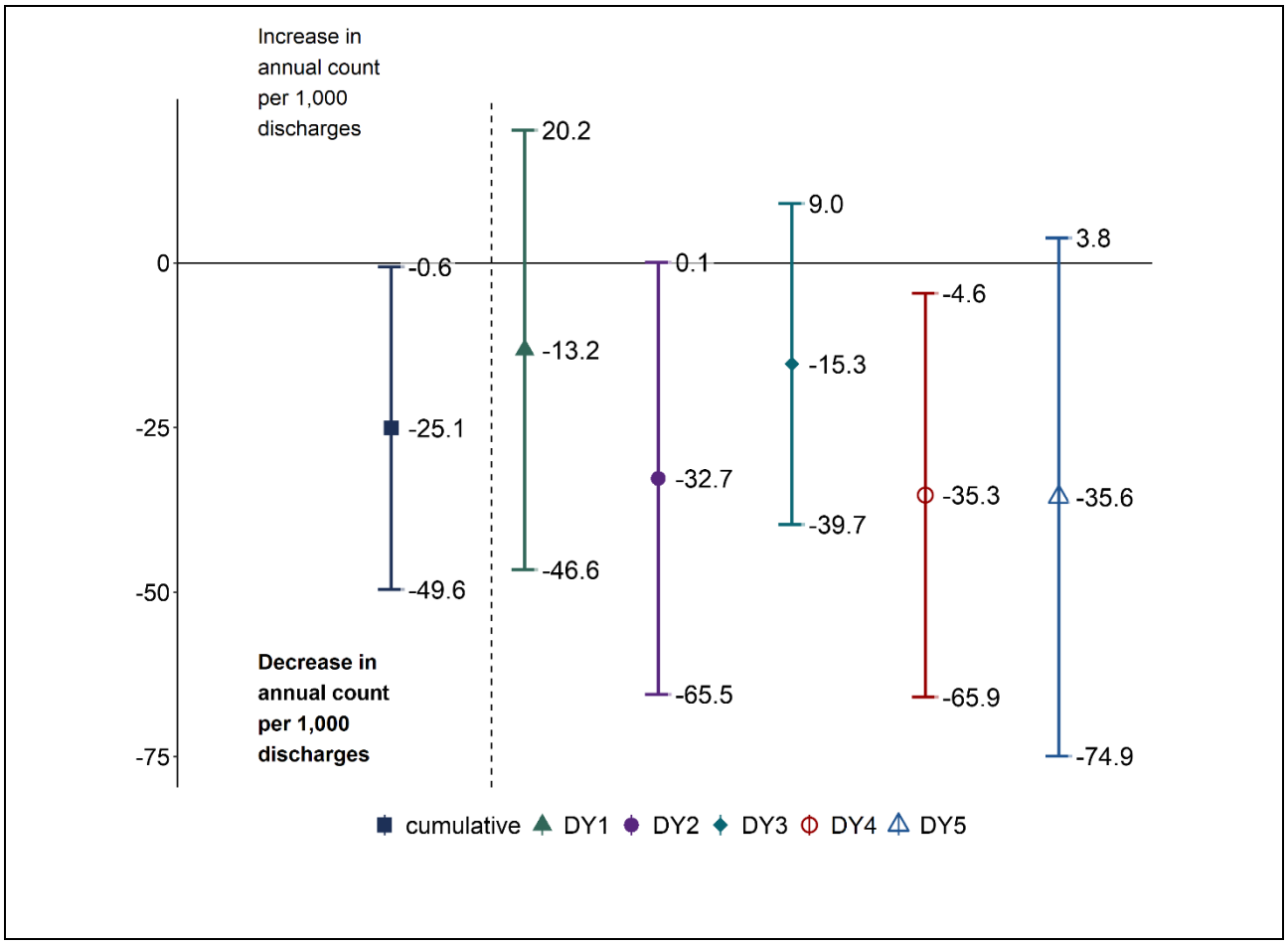
[21] Some caution is warranted when interpreting these results**.** ***Appendix E, Table E-5*** shows that the monthly annual trend in both ACSC measures was declining for the demonstration group and relatively stable for the comparison group during the predemonstration period. These non-parallel trends violate the DinD assumptions of parallel baseline trends and may have biased our findings in a favorable direction for the demonstration group. We conducted a sensitivity analysis controlling for the differences in trends between the demonstration and comparison group during the baseline period and still found statistically significant cumulative decreases in ACSC admissions at the 90 percent confidence level, though at reduction in magnitude to the DinD estimate.

probability of 30-day readmission among the demonstration eligible beneficiaries occurred in demonstration years 4 and 5 (17.4 percent compared to a high of 23.7 percent during predemonstration year 2), whereas the comparison group had a demonstration year 4 and 5 rate of around 19 percent which was very close to its predemonstration year 1 rate.

- The probability of overall ACSC admissions decreased in demonstration years 1 through 5 in the demonstration group by 0.18, 0.15, 0.21, 0.14, and 0.11 percentage points, respectively, relative to the comparison group (***Figure 5-7***). Additionally, chronic ACSC admissions decreased in demonstration years 2 through 4 by 0.12, 0.13, and 0.08 percentage points per month, respectively, relative to the comparison group (***Figure 5-8***).
  - These findings should be interpreted with some caution as indicated above in ***Section 5.3.1, Cumulative Impact over Demonstration Years 1 -5***.[22]
- The monthly average number of preventable ED visits increased in demonstration years 4 and 5 by 4.2 and 3.0 visits per 1,000 beneficiary months, respectively, relative to the comparison group (***Figure 5-9***).
  - The unfavorable preventable ED outcome in years 4 and 5 could result from implementation challenges such as high turnover among care coordinators, challenges with establishing care plans within 90 days of enrollment, and provider network challenges (see ***Section 3.3, Care Coordination*** in the Second Evaluation Report).
  - Alternatively, increased preventable ED visits in those years may also correspond with decreases in ACSC admissions as more ED visits are not resulting in hospitalizations and are recorded as an ED visit (treat and release) and not as a hospitalization.
- There was no statistically significant effect on the probability of a 30-day follow-up after mental health discharge in any demonstration year (***Figure 5-10***).

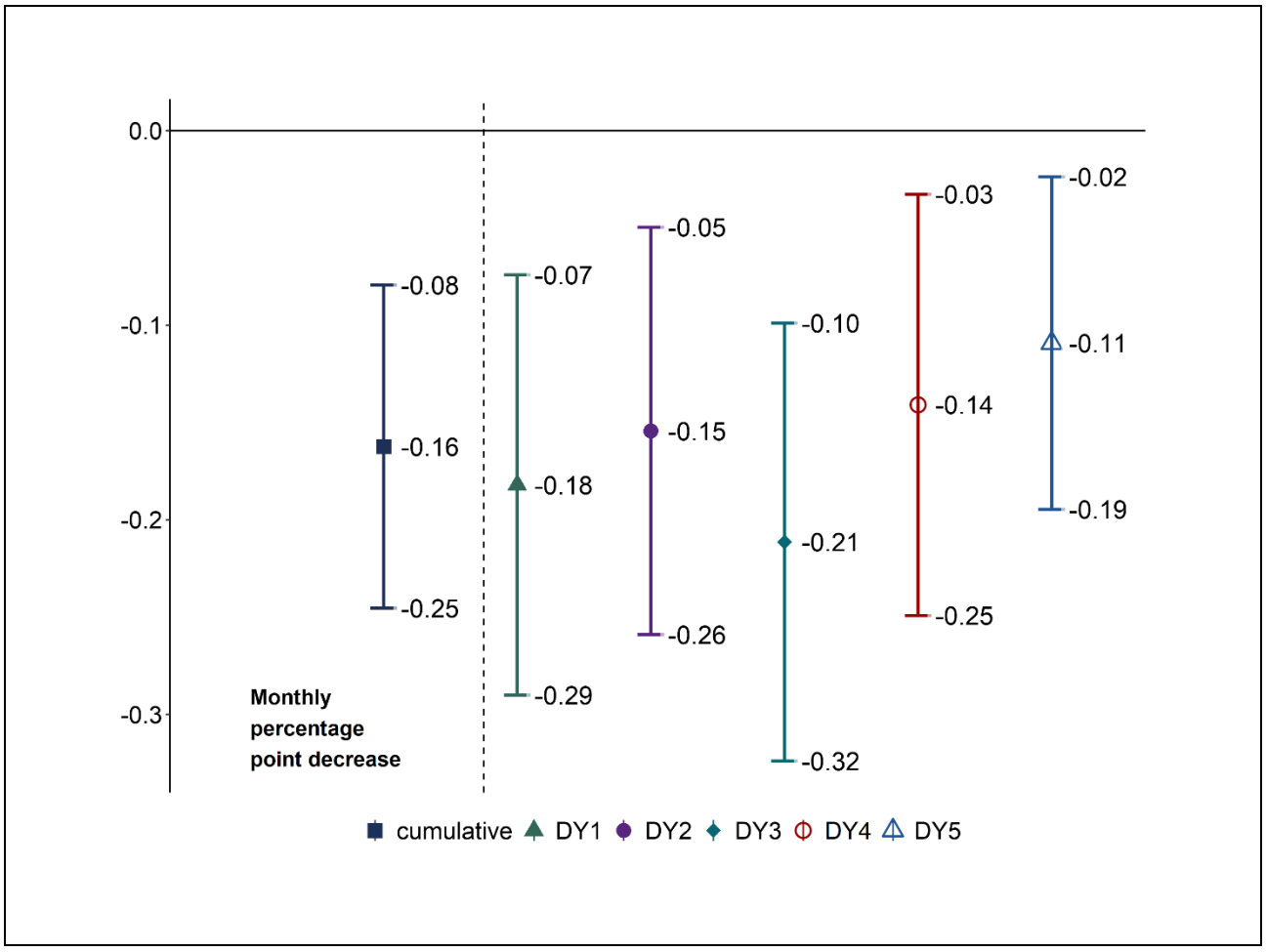
[22] The demonstration year 3 impact estimates for the overall and chronic ACSC admission measures are different than reported in the Second Evaluation Report. Prior to 2018, the IDR had included chart reviews in final action claims which include supplemental diagnosis and procedure information. We have since removed chart reviews from MMP encounter lines to avoid over counting ACSC admissions.

Figure 5-6
Cumulative and annual demonstration effects on 30-day readmissions, in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020



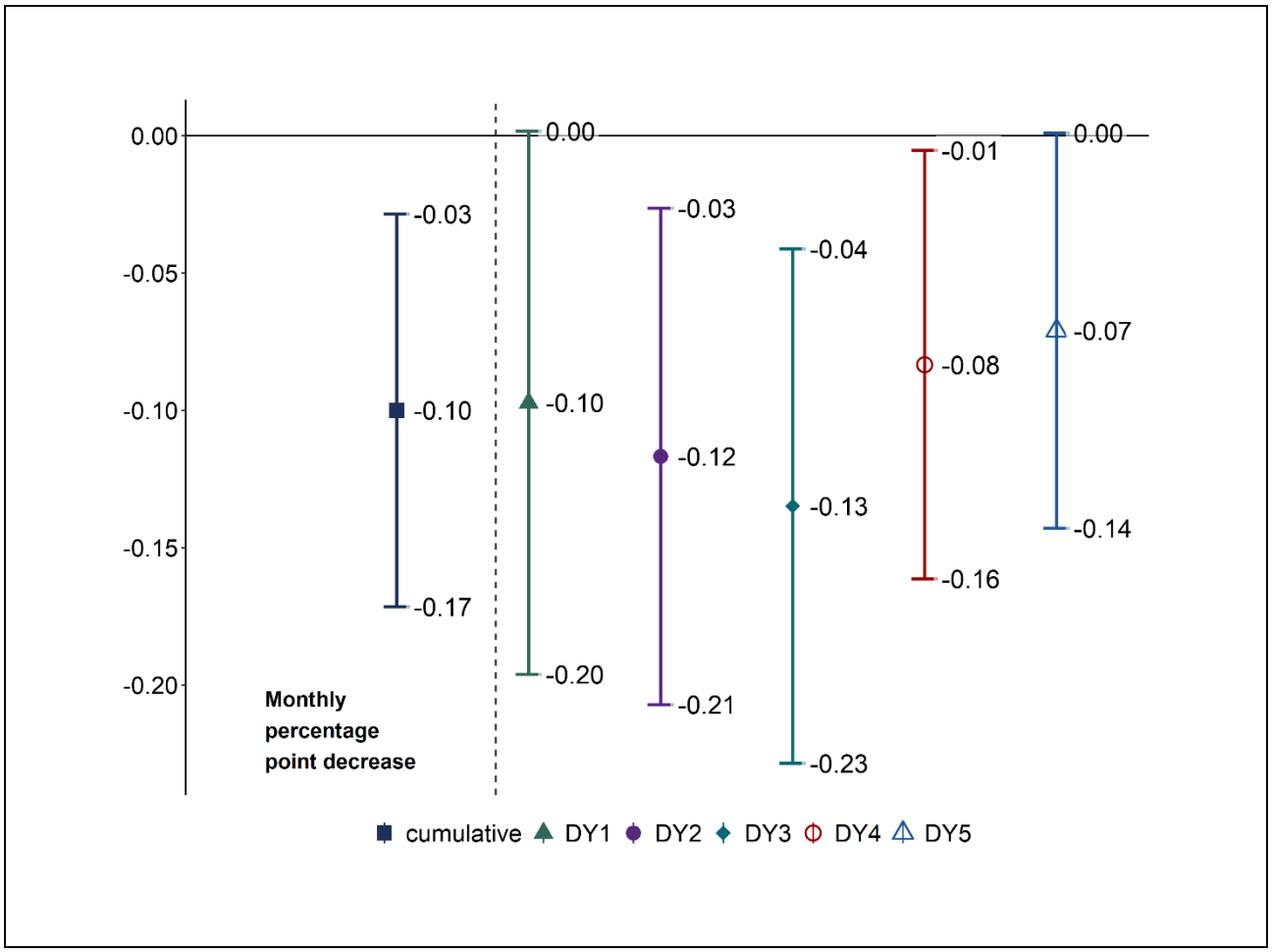
DY = demonstration year.
NOTE: 95 percent confidence intervals are shown. The expected direction of effect is a decrease.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

Figure 5-7
Cumulative and annual demonstration effects on ACSC admissions (overall), in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020



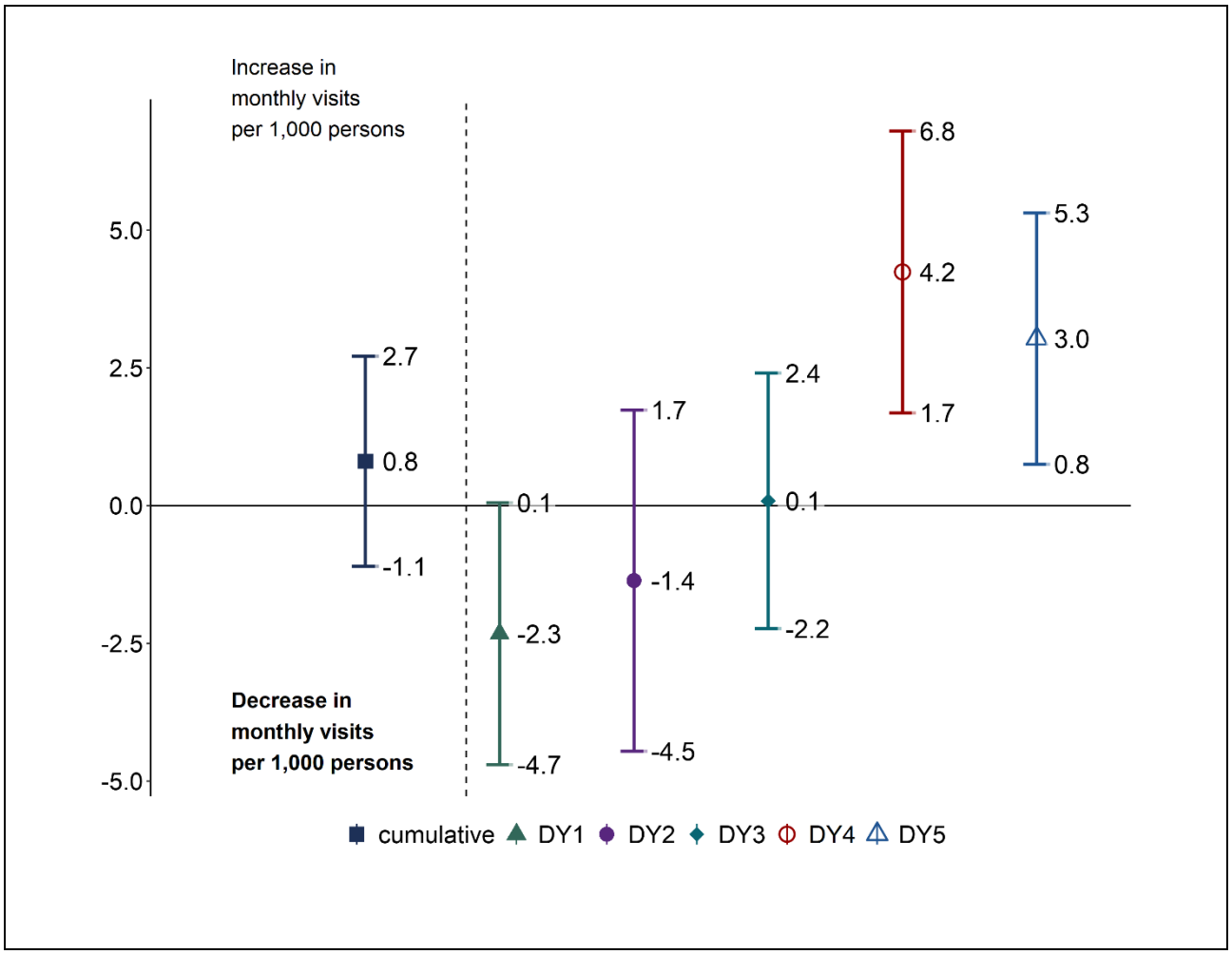
ACSC = ambulatory care sensitive condition; DY = demonstration year.
NOTE: 95 percent confidence intervals are shown. The expected direction of effect is a decrease.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

Figure 5-8
Cumulative and annual demonstration effects on ACSC admissions (chronic), in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020



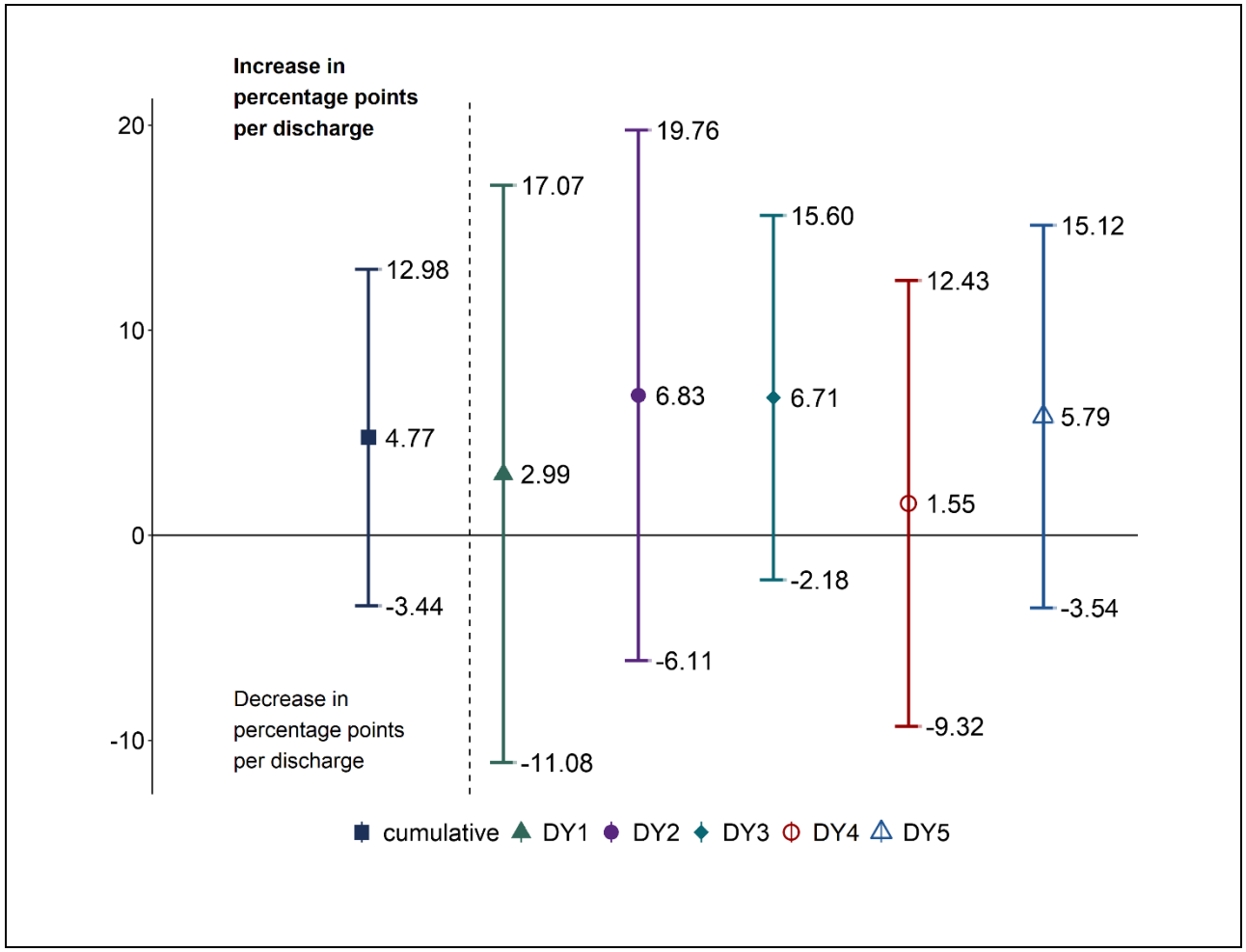
ACSC = ambulatory care sensitive condition; DY = demonstration year.
NOTE: 95 percent confidence intervals are shown. The expected direction of effect is a decrease.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

Figure 5-9
Cumulative and annual demonstration effects on preventable ED visits, in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020



DY = demonstration year; ED = emergency department.
NOTE: 95 percent confidence intervals are shown. The expected direction of effect is a decrease.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

Figure 5-10
Cumulative and annual demonstration effects on 30-day follow-up post mental health discharge, in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020



DY = demonstration year.
NOTE: 95 percent confidence intervals are shown. The expected direction of effect is an increase.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

See ***Appendix E, Tables E-4*** through ***E-8***, for unadjusted descriptive statistics for all service use and quality of care measures for the demonstration eligible population and for demonstration enrollees (i.e., beneficiaries who enrolled in MMPs).

5.4 Demonstration Impact on Special Populations

During demonstration years 1 through 5, the demonstration led to a larger decrease in the probability of any inpatient admission among beneficiaries with LTSS use relative to those without any LTSS use. The other demonstration impacts among the LTSS population were not significantly different than those among the non-LTSS population.

For some outcomes, the demonstration impact among beneficiaries with SPMI was different than the impact among the non-SPMI population. While the demonstration led to a greater decrease in inpatient admissions among the SPMI population relative to the non-SPMI population, it also led to a greater decrease in physician E&M visits and a greater increase in the probability of ED visits among beneficiaries with SPMI relative to the non-SPMI population.

Among the key goals of the demonstration are to improve quality of care and lower spending for those with LTSS use and those with SPMI. Care coordination by the MMPs integrates medical care, behavioral health, and LTSS. The demonstration is expected to particularly impact service utilization and quality of care among eligible beneficiaries with LTSS needs or who have an SPMI, compared to those not in these special populations (see group definitions in ***Appendix D***). The special population analyses indicate that the demonstration impact on inpatient admissions was more favorable for LTSS users relative to non-LTSS users. For beneficiaries with SPMI, the demonstration's impact on inpatient admissions was more favorable than that among the non-SPMI population, but the impact on the probability of ED visits and number of physician E&M visits was less favorable among those with SPMI relative to the non-SPMI population (see ***Tables E-2*** and ***E-3*** in ***Appendix E***).

See ***Tables E-7*** and ***E-8*** in ***Appendix E*** for unadjusted descriptive statistics for demonstration enrollees and non-enrollees.

Additionally, we conducted further analyses to examine unadjusted service utilization results by racial and ethnic groups among the eligible population for select utilization measures: inpatient admissions, ED visits (without subsequent inpatient admission), physician E&M visits, outpatient therapy (physical therapy, occupational therapy, and speech therapy), and hospice use (see ***Figures E-1, E-2,*** and ***E-3*** in ***Appendix E***).

5.4.1 Beneficiaries Receiving Long-Term Services and Supports

As indicated in ***Table D-1*** in ***Appendix D***, about 3.5 percent of the demonstration eligible population in demonstration year 5 had any LTSS use. While the demonstration led to a decrease in the probability of inpatient admission among all eligible beneficiaries relative to the comparison group, the decrease was greater among those with LTSS use relative to those with no LTSS use (see ***Table 5-3***). Specifically, the probability of inpatient admission among LTSS users was 1.26 percentage points less than that among the non-LTSS population.

See ***Table E-2*** in ***Appendix E*** for estimates of the demonstration effect for LTSS users and non-LTSS users in each demonstration year.

Table 5-3
Cumulative demonstration effect on service utilization and quality of care measures, beneficiaries with LTSS use versus those without LTSS use in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Special population	Demonstration effect relative to the comparison group	Relative difference (%)	p-value	95% confidence interval	Difference in demonstration effect (LTSS versus non-LTSS)
Service Utilization Measures						
Monthly probability of any inpatient admission (%)	LTSS	–1.58	–28.4	<0.0001	–2.31, –0.85	–1.26 ***
	Non-LTSS	–0.32	–14.7	0.0009	–0.50, –0.13	
Monthly probability of any ED visit (%)	LTSS	–0.56	NS	0.1717	–1.35, 0.24	–0.56
	Non-LTSS	0.00	NS	0.9912	–0.31, 0.31	
Monthly number of physician E&M visits per 1,000 beneficiaries	LTSS	–67.46	NS	0.1604	–161.64, 26.73	–85.87
	Non-LTSS	18.41	NS	0.1284	–5.33, 42.15	
Monthly probability of any SNF admission (%)	LTSS	–0.43	NS	0.1304	–0.99, 0.13	–0.34
	Non-LTSS	–0.09	–25.4	0.0014	–0.14, –0.03	
Quality of Care Measures						
Monthly number of preventable ED visits per 1,000 beneficiaries	LTSS	2.61	NS	0.5332	–5.60, 10.81	2.73
	Non-LTSS	–0.12	NS	0.9200	–2.47, 2.23	
Monthly probability of any ACSC admission, overall (%)	LTSS	–0.28	NS	0.1039	–0.62, 0.06	–0.15
	Non-LTSS	–0.13	–27.0	0.0014	–0.21, –0.05	
Monthly probability of any ACSC admission, chronic (%)	LTSS	–0.04	NS	0.7500	–0.28, 0.20	0.06
	Non-LTSS	–0.10	–32.2	0.0019	–0.17, –0.04	
Probability of 30-day follow-up after mental health discharge (%)	LTSS	—	—	—	—	—
	Non-LTSS	—	—	—	—	
Number of all-cause 30-day readmissions per 1,000 discharges	LTSS	–24.95	NS	0.3124	–73.35, 23.46	9.92
	Non-LTSS	–34.87	–21.2	0.0174	–63.59, –6.14	

*p<0.05; **p<0.01; ***p<0.001
— = not available
NOTE: Results for the probability of 30-day follow-up after mental health discharge are not reported due to small Ns in both the denominators and numerators of the measure for beneficiaries with LTSS use.
ACSC = ambulatory care sensitive condition; ED = emergency department; E&M = evaluation and management; LTSS = long-term services and supports; NS = not statistically significant; SNF = skilled nursing facility.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

5.4.2 Beneficiaries with Serious and Persistent Mental Illness

As indicated in ***Table D-1*** in ***Appendix D***, about 28.1 percent of the demonstration eligible population in demonstration year 5 had an SPMI. On some measures, the demonstration impacted those with SPMI differently than those without SPMI (see ***Table 5-4***). While the demonstration led to a decrease in the probability of inpatient admission among all eligible beneficiaries relative to the comparison group, the decrease was greater by 0.51 percentage points among those with SPMI relative to those without SPMI. At the same time, among those with SPMI relative to those without SPMI, the demonstration decreased the monthly number of physician E&M visits per 1,000 persons by 75.07 visits and increased the probability of any ED visit by 0.83 percentage points.

See ***Table E-3*** in ***Appendix E*** for estimates of the demonstration effect for beneficiaries with SPMI and those without SPMI in each demonstration year.

Table 5-4
Cumulative demonstration effect on service utilization and quality of care measures, beneficiaries with SPMI versus those without SPMI in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Special population	Demonstration effect relative to comparison group	Relative difference (%)	p-value	95% confidence interval	Difference in demonstration effect (SPMI versus non-SPMI)
Service Utilization Measures						
Monthly probability of any inpatient admission (%)	SPMI	–0.85	–15.7	<0.0001	–1.24, –0.46	–0.51*
	Non-SPMI	–0.34	–14.3	0.0001	–0.51, –0.16	
Monthly probability of any ED visit (%)	SPMI	0.60	7.1	0.0380	0.03, 1.17	0.83*
	Non-SPMI	–0.23	NS	0.1909	–0.58, 0.12	
Monthly number of physician E&M visits per 1,000 beneficiaries	SPMI	–45.52	NS	0.1453	–106.79, 15.74	–75.07*
	Non-SPMI	29.54	4.5	0.0101	7.03, 52.06	
Monthly probability of any SNF admission (%)	SPMI	–0.39	–18.0	0.0024	–0.64, –0.14	–0.25
	Non-SPMI	–0.14	–20.9	0.0006	–0.22, –0.06	
Quality of Care Measures						
Monthly number of preventable ED visits per 1,000 beneficiaries	SPMI	5.06	10.2	0.0332	0.40, 9.72	5.09
	Non-SPMI	–0.03	NS	0.9825	–2.53, 2.47	

(continued)

Table 5-4 (continued)
Cumulative demonstration effect on service utilization and quality of care measures, beneficiaries with SPMI versus those without SPMI in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Special population	Demonstration effect relative to comparison group	Relative difference (%)	p-value	95% confidence interval	Difference in demonstration effect (SPMI versus non-SPMI)
Monthly probability of any ACSC admission, overall (%)	SPMI	–0.24	–19.3	0.0080	–0.42, –0.06	–0.13
	Non-SPMI	–0.11	–20.0	0.0246	–0.20, –0.01	
Monthly probability of any ACSC admission, chronic (%)	SPMI	–0.16	–23.3	0.0451	–0.32, –0.00	–0.10
	Non-SPMI	–0.07	NS	0.0619	–0.13, 0.00	
Number of all-cause 30-day readmissions per 1,000 discharges	SPMI	–2.06	NS	0.8958	–32.87, 28.75	39.33
	Non-SPMI	–41.39	–24.4	0.0158	–75.00, –7.78	

*p<0.05; **p<0.01; ***p<0.001
ACSC = ambulatory care sensitive condition; ED = emergency department; E&M = evaluation and management; NS = not statistically significant; SNF = skilled nursing facility; SPMI = serious and persistent mental illness.
NOTES: Probability of 30-day follow-up after mental health discharge is estimated on only those with a hospitalization for SPMI; the difference-in-differences estimate is reported in ***Table 5-2.***
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

SECTION 6

Demonstration Impact on Cost Savings

The demonstration was associated with an increase in Medicare Parts A and B costs cumulatively in the first 5 demonstration years ($46.14, PMPM), relative to the comparison group.

6.1 Methods Overview

As part of the capitated financial alignment model, South Carolina, CMS, and MMPs entered into a three-way contract to provide services to MMP enrollees. The MMPs receive three separate, risk-adjusted prospective capitated payments. The first two payments are from the Medicare program (for Medicare parts A and B, and Medicare Part D), and the third comes from the State (for Medicaid services). To develop a Medicare Parts A and B capitated rate for the MMPs, CMS combined the Medicare FFS Standardized County Rates and the MA projected payment rates. Each component contributed to the final rate proportionally to the enrolled population in each program prior to demonstration enrollment.[23] CMS adjusts the Medicare component for each enrollee using CMS's hierarchical risk adjustment model to account for differences in the characteristics of enrollees. Additionally, CMS and the State apply aggregate saving percentages to the rates. For further information on the rate development and risk adjustment process, see the memorandum of understanding and three-way contract on the Financial Alignment Initiative website.[24]

This section presents the Medicare Parts A and B cost savings analysis for demonstration years 1 to 5 (February 2015 to December 2020). We do not present a Medicaid cost savings analysis in this report due to concerns about data quality (for additional details, see ***Appendix F***).

We used an ITT analytic framework that includes beneficiaries eligible for the demonstration rather than only those who enrolled. The ITT framework alleviates concerns of selection bias, supports generalizability of the results among the demonstration eligible population, and mimics the real-world implementation of the demonstration. For this analysis, enrolled beneficiaries account for approximately 36 percent of all eligible beneficiaries (including FFS beneficiaries, MMP enrollees, and MA enrollees) in demonstration year 5.[25] The remaining 64 percent of those in the demonstration group are beneficiaries who are eligible for an MMP but not enrolled (non-enrollees). Descriptive results for the entire eligible population are provided in ***Appendix F*** (see ***Tables F-4 to F-13***). Results from a separate analysis, using a more restricted definition of MMP enrollees and their comparison group counterparts, are included in ***Appendix F*** (see ***Table F-16***). The results of this analysis of the more restricted

[23] Joint Rate Setting Process for the Financial Alignment Initiative's Capitated Model (cms.gov)
[24] For the memorandum of understanding, see https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/FinancialAlignmentInitiative/Downloads/SCMOU.pdf;
for the three-way contract (original), see https://www.cms.gov/files/document/sccontract.pdf.
[25] The enrollment percentages reported in this section (and shown in ***Appendix F, Table F-3***) may be different than what was reported in ***Section 3.2, Eligibility and Enrollment***, because of the timing for completion and submitting the finder file versus the SDRS; and they may be different from those reported in ***Section 5, Demonstration Impact on Service Utilization and Quality of Care***, because of the inclusion of beneficiaries enrolled in Medicare Advantage.

definition of MMP enrollees also indicated that there was a statistically significant increase in cost for each demonstration year as well as cumulatively over the entire demonstration.

To evaluate the cost implications of the demonstration, RTI performed a DinD analysis of Medicare Parts A and B expenditures that compares demonstration eligible beneficiaries who live in an area where a participating health plan operates—the demonstration group—to those who meet the same eligibility criteria but live outside those operating areas—the comparison group. The comparison group methodology is identical to the service utilization analyses (see ***Appendix C*** for details).

We made several adjustments to the monthly Medicare expenditures to ensure that observed expenditure variations are not due to differences in Medicare payment policies in different areas of the country or the construction of the capitation rates (see ***Appendix F***). ***Table F-1*** in ***Appendix F*** summarizes each adjustment and the application of the adjustments to FFS expenditures or to the capitation rate.

6.2 Demonstration Impact on Medicare Parts A and B Costs

Table 6-1 shows the magnitude of the DinD estimate of the cumulative demonstration impact on Medicare Parts A and B cost, both in absolute dollar amount and relative to the adjusted mean expenditure level in the comparison group during the demonstration period. The adjusted mean for monthly expenditures increased from the predemonstration period to the demonstration period in both the demonstration and comparison groups, though it increased by a slightly larger amount in the demonstration group than in the comparison group. The cumulative DinD estimate of $46.14 PMPM, which amounts to a relative difference of 3.14 percent of the adjusted mean expenditure for the comparison group during the demonstration period, is statistically significant ($p = 0.0291$). This suggests that overall, the South Carolina demonstration was associated with statistically significant increases in Medicare A and B costs relative to the comparison group.

Table 6-1
Cumulative demonstration impact on monthly Medicare Parts A and B costs in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Group	Adjusted mean for predemonstration period ($)	Adjusted mean for demonstration period ($)	Adjusted coefficient DinD ($)	Relative difference (%)	*p*-value
Demonstration	1,098.17	1,337.36	46.14	3.14	0.0291
Comparison	1,246.30	1,468.42			

DinD = difference-in-differences.
SOURCE: RTI analysis of Medicare claims.

In addition, we estimated the effect of the demonstration in each demonstration year. As shown in ***Figure 6-1***, the demonstration had a statistically significant impact on all demonstration years excluding demonstration year 2 for which there was no statistically significant effect. Although Medicare A and B monthly costs increased in most of the demonstration years (years 3–5), in demonstration year 1 there were statistically significant

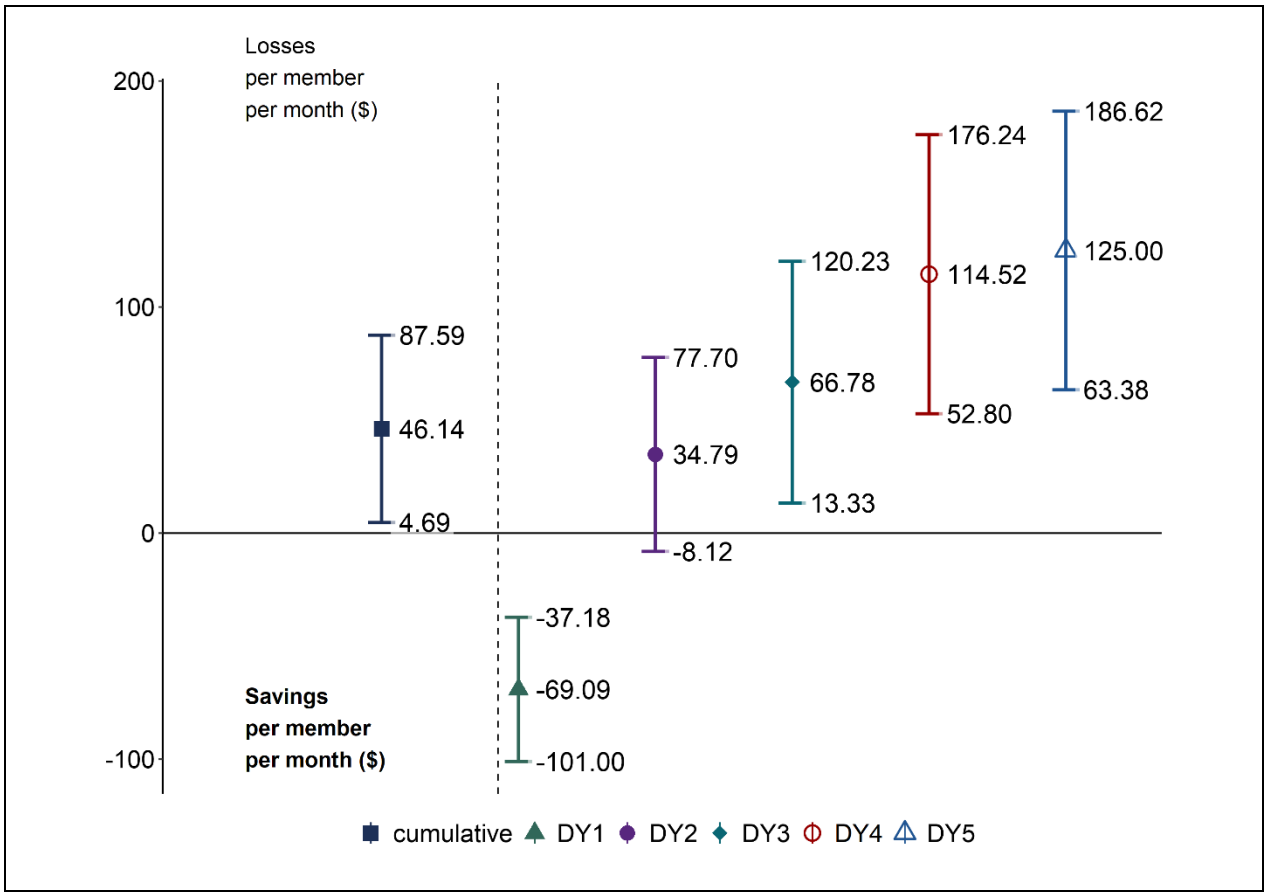
savings. Note that these estimates rely on the ITT analytic framework, only account for Medicare Parts A and B cost, and use the capitation rate for the MMP rather than the actual amount the plan paid for services.

The analysis and results in this report are different than those presented in the Second South Carolina Evaluation Report.[26] In the current report, we were able to use the Medicaid MAX and TAF enrollment and eligibility files to identify and remove beneficiaries who were not eligible for the demonstration due to participation in other Medicaid waivers. These exclusions resulted removing approximately 18 to 19 percent of monthly observations in demonstration group during the baseline period, and 3 to 9 percent during the demonstration period who were otherwise eligible for the demonstration.[27] We also removed beneficiary-month observations from both the demonstration and comparison groups for their medically needy status (less than 1 percent to 2 percent for the comparison group, and less than 1 percent for the demonstration group). See ***Appendix C*** for greater detail on these exclusions. In this way, the sample more accurately reflects the demonstration eligible population than the one reported in the Second Evaluation Report. The remaining demonstration group sample had higher costs in the baseline period; and so, as expected, the difference-in-difference estimate for the first demonstration year is lower in magnitude and statistically significant relative to the previous report.

[26] South Carolina Healthy Connections Prime Second Evaluation Report (cms.gov)

[27] We applied Medicaid waiver exclusions to the demonstration group only because 1915(c) waiver programs in the comparison group states do not necessarily target a similar population. Applying these exclusions to the demonstration group only avoids additional biases caused by removing Medicaid waiver enrollees from the comparison group because the waiver target population and benefits may be different than in the demonstration group.

Figure 6-1
Cumulative and annual demonstration effects on monthly Medicare Parts A and B costs in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

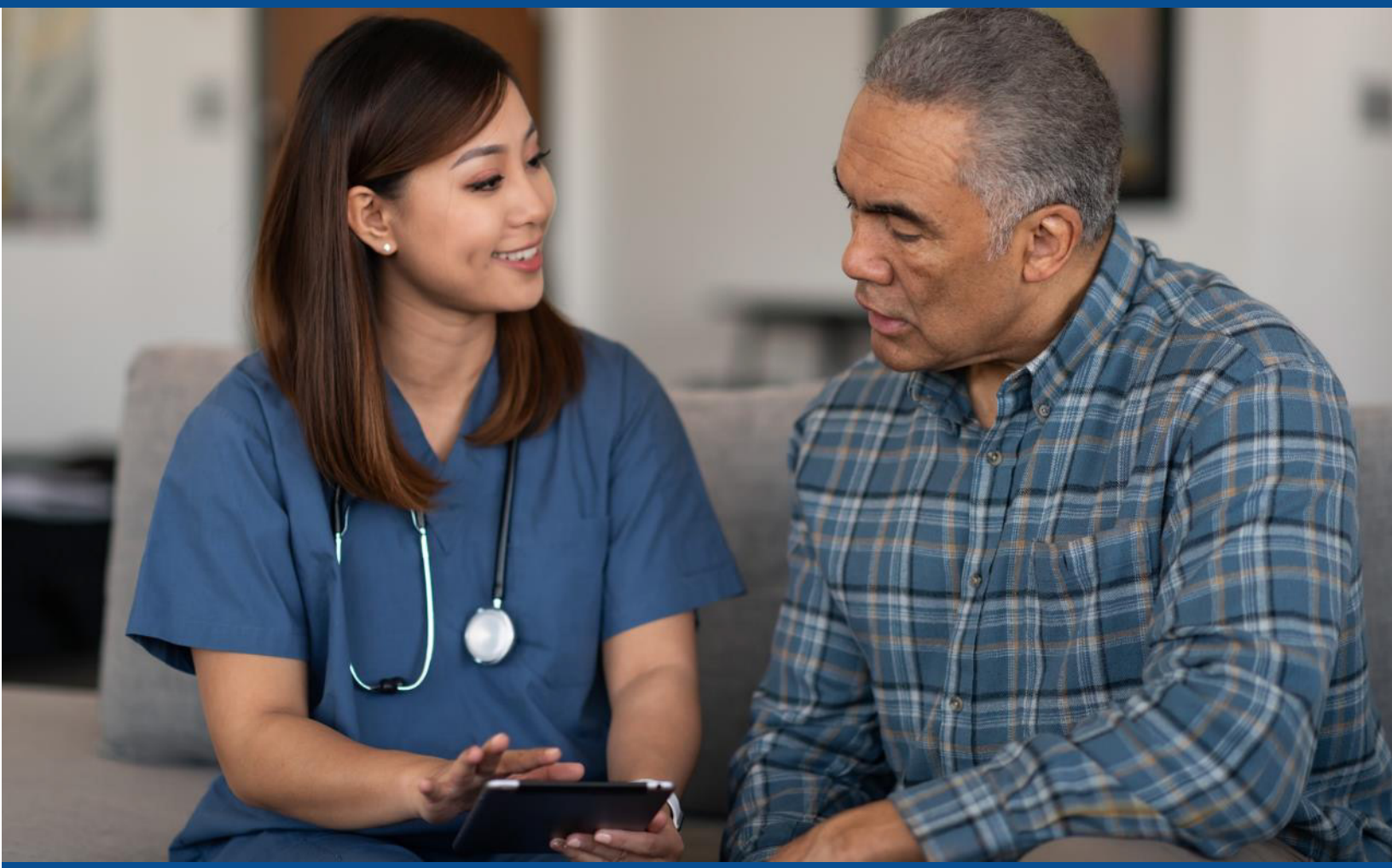


DY = demonstration year.
NOTE: 95 percent confidence intervals are shown. "Losses"/"**Savings**" indicate increased/decreased costs for eligible beneficiaries in the demonstration group, relative to the comparison group.
SOURCE: RTI analysis of Medicare claims.

To better understand these results, we conducted additional descriptive analyses. The details of these analyses are provided in ***Appendix G***, along with an interpretation and discussion of the results. In the first analysis we compared MMP rates with the expected FFS expenditures that would have otherwise occurred for the enrolled population, in demonstration years 1 and 5. The extent to which the MMP capitated payment rates are set higher or lower relative to what CMS would have paid under traditional FFS Medicare could affect the impact estimates. Overall, we found that MMP rates are higher than enrollees' anticipated FFS experience in both demonstration year 1 and demonstration year 5 (see ***Tables G-4*** and ***G-5***). Also note that the PHE in 2020 could be a contributor to this difference between the RTI normalized FFS rate (which reflects actual 2020 utilization and expenditures) and the MMP rates. We also conducted an analysis of spending and hierarchical condition category characteristics among the enrolled population during the predemonstration period. We found that enrollees had lower cost and were healthier than the demonstration eligible but never enrolled population (see ***Figures G-4*** and ***G-5***).

SECTION 7

Conclusions



7.1 Implementation Successes, Challenges, and Lessons Learned

Despite the ongoing challenges associated with navigating the PHE, Healthy Connections Prime continued to prioritize care coordination by finding new ways to contact enrollees to complete enrollee assessments and care plans, and reaching out to engage high-risk enrollees. Healthy Connections Prime also achieved several successes during the reporting period, including continued expansion into new counties, becoming statewide as of January 2022. MMPs reported successes in adjusting to the new realities of the PHE, including implementing telehealth and other virtual interactions with enrollees and helping enrollees adapt to the technology. Another success of the demonstration remains its enrollment. The percentage of eligible beneficiaries enrolled remained over 55 percent between 2017 and 2021.

Healthy Connections Prime enrollees also continued to provide positive feedback in individual interviews and surveys. The PHE had little impact on participants' experience and satisfaction. For example, many of the interview participants reported being very satisfied with the demonstration. They liked their plan's benefit coverage and since joining Healthy Connections Prime, interview participants reported being less concerned about affording their medicines or copays. CAHPS beneficiary satisfaction data were also favorable and showed high satisfaction.

Some significant challenges continued during the reporting period. The most notable were State leadership and MMP care coordination, specifically, as well as locating and engaging enrollees in completing health risk assessments and care plans and staffing.

In reflecting on the demonstration's success, the State said Healthy Connections Prime's success would need to be assessed through "a threefold approach" looking at the following:

- cost savings to both Medicaid and Medicare;
- the provider experience working with the MMPs as their one source for coordinated benefits versus a more segregated Medicare and Medicaid arrangement; and
- enrollee experience.

Although the State actuaries had not yet evaluated whether Healthy Connections Prime was successful in saving the State on Medicaid spending, the State cited Healthy Connections Prime's ability to bring nursing facilities into the managed care fold (as discussed in the First and Second Evaluation Reports) and work with small HCBS providers as examples of success in provider experience working with the MMPs. Likewise, enrollees' positive responses in surveys and interviews regarding satisfaction with their care and services point to positive enrollee experience with the demonstration. The State also said in early 2022 that it considered the demonstration's success to be reflected in the experience gained, and in the path forward to the next model that experience has helped frame. The State underscored the importance of meaningful communication in getting through some of the "pain points" such as leadership changes and provider pushback on demonstration participation.

7.2 Demonstration Impact on Service Utilization and Costs

Over the course of the demonstration, there were favorable impacts on several service utilization and quality of care measures among South Carolina demonstration eligible beneficiaries relative to the comparison group. Specifically, the demonstration was associated with decreases in the probabilities of any inpatient admission, any SNF admission, and likely any long-stay NF use relative to the comparison group. Furthermore, the number of 30-day all-cause readmissions and the probability of any ACSC admission (overall and chronic) decreased among demonstration eligible beneficiaries relative to the comparison group. The South Carolina demonstration did not favorably impact the number of ED visits, the number of preventable ED visits, the number of physician visits, or the probability of a 30-day follow-up after mental health discharge.

As described in greater detail in ***Section 5, Demonstration Impact on Service Utilization and Quality of Care***, there are a number of possible explanations for these results. The favorable impacts on inpatient admissions, SNF use, ACSC admissions, and all-cause 30-day readmissions may in part be driven by improvements in care coordination since a high proportion of enrollees had completed a care plan by demonstration year 3 (see ***Section 3.3.3, Care Planning*** in this report). MMPs were able to maintain low levels of care coordination turnover (see ***Section 3.3.5, Care Coordination Staffing*** in the Second Evaluation Report), and streamlined comprehensive assessment requirements allowing care coordinators to focus face-to-face assessments on high-risk beneficiaries (see ***Section 3.3.2, Assessments*** of the Second Evaluation Report). In addition, despite challenges in care transition planning (see ***Section 3.3.4, Care Transitions*** in the Second Evaluation Report), 30-day readmissions decreased faster in the demonstration group, relative to the comparison group. Indeed, the risk-adjusted probability of 30-day readmissions among enrollees decreased from 18.1 to 15.7 percent from demonstration year 1 through demonstration year 5 (see ***Appendix E, Table E-8***).

Some caution is warranted when considering the impacts on long-stay NF use, as beneficiaries residing in an NF were excluded from the demonstration eligible population, but not among those who enrolled in the demonstration, and estimates are consequently biased in favor of the demonstration group. Furthermore, decreases to the probability of ACSC admissions may be slightly overstated as the utilization was already declining among the demonstration group relative to the comparison group prior to the start of the demonstration (see ***Appendix E, Table E-1***).[28]

Individuals with LTSS use represent approximately 3.5 percent of the demonstration eligible population in demonstration year 5. Although the demonstration led to a decrease in the probability of inpatient admissions among all eligible beneficiaries relative to the comparison group, the decrease was greater among those with LTSS use relative to those with no LTSS use. These favorable findings may in part be related to efforts by MMPs to integrate HCBS and

[28] To test whether non-parallel baseline trends biased the DinD estimate for ACSC admissions (chronic and overall), we ran a sensitivity model controlling for differences in baseline trends between the comparison and demonstration group. Our findings result in a DinD estimate of lower magnitude but statistically significant at the 90 percent confidence level.

medical services through coordinated communication between waiver and case managers (see ***Section 4.1.2, HCBS Waiver Services and Coordination*** of the First Evaluation Report).

Roughly 28 percent of the demonstration eligible population in demonstration year 5 had an SPMI, and for some outcomes the demonstration impacted those with SPMI differently than those without SPMI. While the demonstration led to a decrease in the probability of inpatient admissions among all eligible beneficiaries relative to the comparison group, the decrease was greater among those with SPMI relative to those without SPMI. There was a decrease in E&M visits among those with a SPMI, relative to those without an SPMI, but more context is needed to better understand this finding. Specifically, among those without an SPMI there was an increase of 29.5 visits per 1,000 beneficiary months, relative to the comparison group, while there was no effect among those with an SPMI (the difference between the two point estimates represents the differential effect). The demonstration effect on the probability of any ED visit among those with an SPMI was an increase in the monthly probability of use, relative to the demonstration effect for those without an SPMI. However, the separate DinD estimates indicate that the demonstration was not independently associated with ED use among those with an SPMI or without an SPMI. Access to behavioral health providers was a key challenge identified by enrollees early in the demonstration (see ***Section 5.2.4, Care Coordination Services*** in the First Evaluation Report). MMPs engaged in efforts through 2020 to integrate behavioral health services with primary care, such as expanding their provider network to include psychiatrists, professional counselors, licensed-clinical social workers, but MMP officials noted these efforts remained a challenge (see ***Section 3.1.2, Integrated Delivery Systems*** in the Second Evaluation Report).

The cumulative cost analysis found a statistically significant cost increase of $46.14, PMPM, to the Medicare program over the first 5 demonstration years among demonstration eligible beneficiaries, relative to the comparison group. Although the results in demonstration year 1 indicated savings and there were null effects in demonstration year 2, the analysis also found increased Medicare Parts A and B costs in 3 of the 5 demonstration years evaluated, even though savings percentages to the MMP capitated rate were applied for all the demonstration periods.

Several factors could explain why savings have not materialized. The analysis of the demonstration's impact on Medicare costs used an ITT approach that included all eligible beneficiaries, not only those enrolled in the MMPs, to alleviate concerns about selection bias in enrollment that could not be replicated in the comparison group. Although the enrollees represented just over one-half of all demonstration eligible beneficiaries, thus making the eligible but not enrolled population about the same as the enrolled population, higher spending in the eligible but not enrolled group could still have obscured any savings achieved among the enrolled population. Additionally, we observed favorable selection into the demonstration; enrollment of a healthier population would diminish the potential for cost savings in the demonstration. Another possible explanation for these unfavorable findings may be that the MMP capitated rates were set higher than what would have otherwise been spent in Medicare FFS. To examine this possibility, we compared MMP rates to FFS spending in demonstration years 1 and 5 (see ***Appendix G, Tables G-4*** and ***G-5***). The capitated rates were higher than the FFS rates in demonstration year 1, though the DinD analysis found significant cost decreases. This disconnect could be due to low enrollment in demonstration year one. The capitated rates

were on average 6.6 percent greater than FFS in demonstration year 5 (calendar year 2020), consistent with our DinD analysis that found significant cost increases.[29]

7.3 Summary

Healthy Connections Prime, launched in 2015, is one of two demonstrations under the FAI to focus eligibility on dually eligible beneficiaries 65 and over. In 2016, one of the four original MMPs dropped out of the demonstration. After implementation, most modifications to the demonstration design were minor, with the exception of changes made to the demonstration's enrollment and care coordination approaches. Through passive enrollment changes and geographic coverage expansion, enrollment reached 15,055 in December 2021.

The demonstration's integration of Medicare and Medicaid services provided enrollees with a single card and point of contact; zero copayments; access to supplemental benefits and waiver-like services; and coordination of primary care, acute care, behavioral health services, LTSS, and palliative care. Over the course of the demonstration, Healthy Connections Prime experienced challenges in ensuring enrollee access to specialty services and care coordination, including challenges reaching enrollees and with care coordination staffing. In some instances, the PHE exacerbated these challenges. However, MMPs worked consistently in collaboration with CMS, the State, and other stakeholders to address these challenges.

Despite these challenges, Healthy Connections Prime has produced several favorable outcomes. Most enrollees who responded to the CAHPS and beneficiary interviews expressed high rates of satisfaction with their MMP and the care coordination provided. In addition, the demonstration was associated with an overall favorable impact on utilization and quality measures relating to inpatient and SNF admissions, long-stay NF use, 30-day readmissions, and ACSC hospitalizations. These findings may in part have been driven by improvements in care coordination, and the commitment of the State, CMS, MMPs, and stakeholders to support efforts to improve access and quality of care for demonstration enrollees.

The demonstration was associated with an increase in Medicare costs of $46.14 PMPM over the first 5 years of the demonstration. Factors other than demonstration effectiveness, such as favorable selection into the demonstration and the MMP rates set higher than expected FFS rates, may have contributed to this finding.

In early 2022, the State and CMS said they were considering an additional extension beyond December 31, 2023, to give the State time to transition MMPs to the next phase of Healthy Connections Prime. The State submitted a draft transition plan to CMS in late 2022 stating its intention to transition Healthy Connections Prime to a Highly Integrated Dual Eligible Special Needs Plan (HIDE-SNP) platform at the end of 2025.[30]

[29] Also note that the PHE in 2020 could be a contributor to this difference between the RTI normalized FFS rate (which reflects actual 2020 utilization and expenditures) and the MMP rates.
[30] As of September 2023, the South Carolina demonstration was extended through December 31, 2025.

References

Centers for Medicare & Medicaid Services (CMS): South Carolina Healthy Connections Prime Demonstration. https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/FinancialAlignmentInitiative/Downloads/SCContractSummaryChanges11012017.pdf. November 1, 2017. 2017a. As obtained on March 28, 2023.

Centers for Medicare & Medicaid Services (CMS): Contract Amendment between CMS and SCDHHS, and MMPs. https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/FinancialAlignmentInitiative/Downloads/SCContractAmendment_07012018.pdf. July 2018. As obtained on February 23, 2023.

Centers for Medicare & Medicaid Services (CMS): Contract Amendment between CMS, SCDHHS, and MMPs. https://www.cms.gov/files/document/sccontractamendment2020.pdf. 2020. As obtained on February 23, 2023.

Centers for Medicare & Medicaid Services (CMS): Summary of Changes to the Contract Amendment between CMS, SCDHHS, and MMPs. https://www.cms.gov/files/document/sccontractsummaryofchanges.pdf. January 1, 2022. As obtained on February 27, 2023.

Centers for Medicare & Medicaid Services (CMS): Medicare-Medicaid Capitated Financial Alignment Model Reporting Requirements. https://www.cms.gov/medicare-medicaid-coordination/medicare-and-medicaid-coordination/medicare-medicaid-coordination-office/financialalignmentinitiative/mmpinformationandguidance/mmpreportingrequirements.n.d. As obtained on February 27, 2023.

Centers for Medicare & Medicaid Services (CMS): South Carolina Medicare-Medicaid Plan Quality Withhold Analysis Results: Demonstration Year 5 (Calendar Year 2020). https://www.cms.gov/files/document/qualitywithholdresultsreportscdy5.pdf. n.d. As obtained on February 27, 2023.

RTI International: Financial Alignment Initiative South Carolina Healthy Connections Prime: First Evaluation Report. https://innovation.cms.gov/files/reports/fai-sc-firstevalrpt.pdf. September 24, 2019. As obtained on February 23, 2023.

RTI International: Financial Alignment Initiative South Carolina Healthy Connections Prime: Second Evaluation Report. https://innovation.cms.gov/data-and-reports/2022/fai-sc-er2. January 11, 2022. As obtained on February 23, 2023.

RTI International: State Data Reporting System (SDRS): 2015-2021.

South Carolina Department of Health and Human Services (SCDHHS): Healthy Connections Prime Stakeholder Update. scdhhs.gov/sites/default/files/SCDue2/Prime Oct 2021 Stakeholder Update - Final.pdf. October 2021. As obtained on February 27, 2023.

Office of the Assistant Secretary for Planning and Evaluation (ASPE): Department of Health and Human Services: Report to Congress: Social Risk Factors and Performance Under Medicare's Value-Based Purchasing Programs. https://aspe.hhs.gov/sites/default/files/private/pdf/253971/ASPESESRTCfull.pdf. 2016. As obtained on February 27, 2023.

Appendix A

Data Sources

We used the following data sources to prepare this report.

Key informant interviews. The RTI evaluation team conducted virtual site visits in South Carolina in 2021. The team interviewed the following individuals: Medicare-Medicaid plan (MMP), State, and CMS officials, and beneficiary advocates. To monitor demonstration progress, the RTI evaluation team engaged in periodic phone conversations with the SCDHHS and CMS. These might have included discussions about new policy clarifications designed to improve plan performance, quality improvement work group activities, and contract management team actions.

Beneficiary interviews. RTI conducted 15 individual interviews with beneficiaries enrolled in Healthy Connections Prime in South Carolina. The interviews took place between October and December 2022.

Surveys. Medicare requires all Medicare Advantage (MA) plans, including Medicare-Medicaid Plans, to conduct an annual assessment of beneficiary experiences using the Medicare Advantage and Prescription Drug Plan Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey instrument. This report includes survey results for a subset of the 2017 through 2021 survey questions. In response to the PHE, CMS did not require MA plans, including MMPs, to collect CAHPS data for 2020. Findings are available at the MMP level. Some CAHPS items are case mix-adjusted. Case mix refers to the respondent's health status and sociodemographic characteristics, such as age or educational level, that may affect the ratings that the respondent provides. Without an adjustment, differences between entities could be due to case mix differences rather than true differences in quality. The frequency count for some survey questions is suppressed because too few enrollees responded to the question. Comparisons with findings from all MA plans are available for core CAHPS survey questions.

Demonstration data. The RTI evaluation team reviewed data provided quarterly by South Carolina through the State Data Reporting System (SDRS). These reports include eligibility, enrollment, opt-out, and disenrollment data, and information reported by South Carolina on its integrated delivery system, care coordination, benefits and services, quality management, stakeholder engagement, financing and payment, and a summary of successes and challenges. This report also uses data for quality measures reported by Medicare-Medicaid Plans and submitted to CMS' implementation contractor, NORC.[31,32] Data reported to NORC include core quality measures that all Medicare-Medicaid Plans are required to report, as well as State-specific measures that South Carolina Healthy Connections plans are required to report. Due to reporting inconsistencies, plans occasionally resubmit data for prior demonstration years; therefore, the data included in this report are considered preliminary.

Demonstration policies, contracts, and other materials. The RTI evaluation team reviewed a wide range of demonstration documents, including demonstration and State-specific

[31] Data are reported for 2014–2021.

[32] The technical specifications for reporting requirements are in the Medicare-Medicaid Capitated Financial Alignment Model Core Reporting Requirements.

information on the CMS website;[33] and other publicly available materials on the South Carolina Department of Health and Human Services (SCDHHS) Healthy Connections webpage.[34]

Complaints and appeals data. Complaint (also referred to as grievance) data are from three separate sources: (1) complaints from beneficiaries reported by Healthy Connections Prime plans to SCDHHS, and reported separately to CMS' implementation contractor, NORC,[35] through Core Measure 4.2; (2) complaints received by SCDHHS or 1-800-Medicare and entered into the CMS electronic Complaint Tracking Module (CTM); and (3) qualitative data obtained by RTI on complaints. Appeals data are generated by MMPs and reported to SCDHHS and NORC, for Core Measure 4.2, and to the Medicare Independent Review Entity. This report also includes critical incidents and abuse data reported by Healthy Connections Prime MMPs to SCDHHS and CMS' implementation contractor, NORC**.**

HEDIS measures. We report on a subset of Medicare Healthcare Effectiveness Data and Information Set (HEDIS) measures, a standard measurement set used extensively by managed care plans, that are required of all MA plans. Due to the COVID-19 public health emergency (PHE), in 2020 MA plans, including MMPs, were not required to report results for the 2019 measurement year.

Service utilization data. Evaluation Report analyses used data from many sources. First, the State provided quarterly finder files containing identifying information on all demonstration eligible beneficiaries in the demonstration period. Second, RTI obtained administrative data on beneficiary demographic, enrollment, and service use characteristics from CMS data systems for both demonstration and comparison group members. Third, these administrative data were merged with Medicare claims and encounter data, as well as the Minimum Data Set.

Medicare cost data. Two primary data sources were used to support the savings analyses, capitation payments and fee-for-service (FFS) Medicare claims. Medicare capitation payments paid to MMPs during the demonstration period were obtained for all demonstration enrollees from CMS Medicare Advantage and Part D Inquiry System (MARx) data. The capitation payments were the final reconciled payments paid by the Medicare program after taking into account risk score reconciliation and any associated retroactive adjustments in the system at the time of the data pull (December 2021). Because quality withholds adjustments and risk corridor payments are not reflected in the MARx data, we applied quality withhold repayments and risk corridor payments or recoupments to the capitation payments based on data provided by CMS. Capitation payments and FFS Medicare claims were used to calculate expenditures for all comparison group beneficiaries, demonstration beneficiaries in the predemonstration period, and demonstration eligible beneficiaries who were not enrolled during the demonstration period. FFS claims included all Medicare Parts A and B services. For a comprehensive list of adjustments please refer to ***Appendix F, Table F-1***.

[33] https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/FinancialAlignmentInitiative/FinancialModelstoSupportStatesEffortsinCareCoordination.html
[34] https://msp.scdhhs.gov/SCDue2/
[35] The technical specifications for reporting requirements are in the Medicare-Medicaid Capitated Financial Alignment Model Core Reporting Requirements document.

Medicaid eligibility and waiver data. Medicaid research identifiable files were used to identify individuals among demonstration and comparison group eligible beneficiaries who were eligible for the demonstration. The source of Medicaid data included both the Medicaid Statistical Information Statistics (MSIS) Medicaid Analytic eXtract (MAX) and the Transformed Medicaid Statistical Information System (T-MSIS) Analytic Files (TAF).

Appendix B

South Carolina Healthy Connections Prime MMP Performance on Select HEDIS Quality Measures, 2016–2021

Table B-1 provides 2016 through 2021 HEDIS performance data for Healthy Connections Prime MMPs. Using correlation coefficients that were 0.9 and above, or −0.9 and below, we have applied green and red shading to indicate where MMP performance over time for a given measure steadily improved or worsened; green indicates a favorable trend, and red indicates an unfavorable one.[36] We did not perform any testing for statistical significance for differences across years because of the limited data available. For measures without green or red shading, year-over-year MMP performance remained relatively stable between 2016 and 2021.

Absolute Total Care improved over time on measures for blood pressure control (a standalone measure) and outpatient visits per 1,000 members, but worsened performance over time on functional status assessment and pain assessment (both Care for Older Adults submeasures), emergency department visits per 1,000 members and plan all-cause readmissions (age 65+).

Molina improved over time on measures for effective acute phase treatment and effective continuation phase treatment (both antidepressant medication management submeasures), outpatient visits per 1,000 members, and emergency department visits per 1,000 members.

Select Health improved over time on measures for medication review and pain assessment (both Care for Older Adults submeasures) and outpatient visits per 1,000 members, but worsened performance over time on adult's access to preventive/ambulatory health services and emergency department visits per 1,000 members.

[36] Correlation coefficients were calculated with respect to time expressed in years.

Table B-1
Healthy Connections Prime MMP performance on select HEDIS quality measures for 2016–2021[1] by MMP

Measure	National MA Plan Mean	Absolute Total Care					Molina					Select Health				
	(2021)	(2016)	(2017)	(2018)	(2020)	(2021)	(2016)	(2017)	(2018)	(2020)	(2021)	(2016)	(2017)	(2018)	(2020)	(2021)
Adults' access to preventive/ ambulatory health services	94.2	97.2	91.9	91.5	90.7	90.0	95.3	92.9	92.7	92.2	91.9	95.6 R	93.8 R	93.7 R	91.9 R	91.0 R
Adult BMI assessment[2]	N/A	86.5	94.4	93.4	—	—	94.7	100.0	98.3	—	—	83.3	97.0	94.0	—	—
Blood pressure control[3]	70.1	40.3 G	42.6 G	48.2 G	53.8 G	56.7 G	51.5	54.7	54.5	47.9	61.8	40.4	56.5	61.3	46.5	57.9
Breast cancer screening	68.3	N/A	82.0	66.3	62.1	60.4	N/A	64.1	57.1	60.9	59.0	N/A	72.6	55.9	60.1	57.7
Colorectal cancer screening	68.6	45.5	68.1	51.3	58.2	57.9	58.5	65.3	51.8	51.8	47.7	33.0	57.9	57.1	47.7	47.2
Disease modifying anti-rheumatic drug therapy in rheumatoid arthritis[4]	N/A	N/A	75.0	N/A	75.0	—	N/A	N/A	N/A	N/A	—	N/A	65.9	61.5	66.7	—
Follow-up after hospitalization for mental illness (30 days)[5]	48.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	48.7	30.3	48.8	45.2
Antidepressant medication management																
Effective acute phase treatment[6]	79.5	N/A	N/A	75.0	83.2	80.4	N/A	N/A	69.1 G	75.0 G	78.0 G	N/A	62.3	79.0	79.7	75.8
Effective continuation phase treatment[7]	64.5	N/A	N/A	67.5	65.2	70.1	N/A	N/A	50.9 G	64.5 G	67.0 G	N/A	54.7	68.4	65.7	62.4

(continued)

Table B-1 (continued)
Healthy Connections Prime MMP performance on select HEDIS quality measures for 2016–2021[1] by MMP

Measure	National MA Plan Mean	Absolute Total Care					Molina					Select Health				
	(2021)	(2016)	(2017)	(2018)	(2020)	(2021)	(2016)	(2017)	(2018)	(2020)	(2021)	(2016)	(2017)	(2018)	(2020)	(2021)
Care for older adults																
Advance care planning	N/A	9.3	17.3	16.1	64.2	53.0	37.8	59.6	44.3	49.9	47.9	17.8	17.8	24.8	29.7	32.4
Medication review	N/A	84.2	99.9	98.3	89.8	90.5	86.5	82.0	73.2	74.7	79.3	58.3 G	61.8 G	64.5 G	71.3 G	74.2 G
Functional status assessment	N/A	90.2 R	87.6 R	85.9 R	71.8 R	63.5 R	63.5	77.1	66.4	55.0	52.3	39.6	40.4	49.9	45.5	38.0
Pain assessment	N/A	92.8 R	92.7 R	87.8 R	82.5 R	76.2 R	87.8	89.5	80.5	78.6	79.1	48.6 G	56.0 G	60.6 G	69.6 G	74.9 G
Comprehensive diabetes care																
Received Hemoglobin A1c (HbA1c) testing	93.7	91.6	91.1	91.5	92.7	92.7	100.0	95.4	95.6	91.2	93.2	92.0	92.5	94.7	90.8	91.7
Poor control of HbA1c level (>9.0%) (higher is worse)	24.1	41.4	43.0	35.3	33.8	27.3	33.3	41.8	31.1	32.4	29.0	62.0	47.7	37.0	38.4	32.9
Good control of HbA1c level (<8.0%)	66.0	53.7	48.6	53.8	60.1	63.8	57.8	49.3	56.0	59.9	63.0	31.9	46.2	53.8	54.5	60.1
Received eye exam (retinal)	70.7	46.3	51.2	58.2	58.6	52.8	73.3	63.7	56.5	56.2	61.1	51.3	52.1	60.6	57.4	55.5
Received medical attention for nephropathy	94.9	90.5	95.2	94.2	94.2	90.8	97.8	96.3	95.6	93.4	93.9	95.6	95.4	96.4	91.9	93.9
Blood pressure control (<140/90 mm Hg)	67.4	48.4	38.1	46.0	51.3	50.9	64.4	51.9	58.6	54.3	65.2	46.0	49.6	54.7	50.1	49.4

(continued)

Table B-1 (continued)
Healthy Connections Prime MMP performance on select HEDIS quality measures for 2016–2021[1] by MMP

Measure	National MA Plan Mean	Absolute Total Care					Molina					Select Health				
	(2021)	(2016)	(2017)	(2018)	(2020)	(2021)	(2016)	(2017)	(2018)	(2020)	(2021)	(2016)	(2017)	(2018)	(2020)	(2021)
Initiation and engagement of alcohol and other drug (AOD) dependence treatment																
Initiation of AOD treatment[8]	33.7	N/A	43.9	39.1	47.2	43.7	N/A	60.4	46.5	45.3	46.2	N/A	47.0	39.3	39.7	36.4
Engagement of AOD treatment[9]	5.4	N/A	3.0	3.5	6.4	4.8	N/A	5.7	2.8	6.3	4.2	N/A	8.4	4.5	5.5	4.1
Plan all-cause readmissions (Observed-to-expected ratio[10])																
Age 18-64[11]	1.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Age 65+	1.10	0.68 R	0.86 R	0.97 R	1.14 R	1.15 R	N/A	0.95	0.88	0.86	0.94	0.59	0.88	0.76	1.47	1.46
Ambulatory care (per 1,000 members[12])																
Outpatient visits	N/A	5,492.1 G	6,845.5 G	7,914.3 G	—	—	8,447.7 G	8,918.9 G	9,123.9 G	—	—	7,803.5 G	8,148.5 G	8,810.3 G	—	—
Emergency department visits (higher is worse)	N/A	920.7 R	924.0 R	952.7 R	—	—	841.8 G	808.0 G	781.0 G	—	—	794.1 R	809.6 R	833.0 R	—	—

— = not available, where the plan did not provide HEDIS data for this measure; AOD = alcohol and other drug; BMI = body mass index; HEDIS = Healthcare Effectiveness Data and Information Set; MA = Medicare Advantage; MMP = Medicare-Medicaid Plan; N/A = not applicable, where MA plans do not report such data, or where the number of enrollees in the MMP's HEDIS data available for inclusion in the measure was less than 30, and therefore not reported per RTI's decision rule for addressing low sample size.

[1] In response to the COVID-19 Public Health Emergency, CMS did not require Medicare plans (including MMPs) to submit HEDIS 2020 data covering the 2019 measurement year. Therefore, we omitted a column for the 2019 measurement year.

[2] Adult BMI assessment was retired from HEDIS in 2020. Therefore, MMPs did not provide HEDIS data for this measure for measurement years 2020 and 2021.

[3] The following criteria were used to determine adequate blood pressure control: less than 140/90 mm Hg for members 18–59 years of age; diagnosis of diabetes and <140/90 mm Hg for members 60–85 years of age; no diagnosis of diabetes and <150/90 mm Hg for members 60–85 years of age.

[4] Disease modifying anti-rheumatic drug therapy in rheumatoid arthritis measure was retired from HEDIS in 2021. Therefore, MMPs did not provide HEDIS data for this measure for the 2021 measurement year.

[5] NCQA implemented a significant specification change with HEDIS 2017, disallowing same-day follow-up visits. National benchmarks fell from HEDIS 2017 to HEDIS 2018.

[6] Represents the percentage of members who remained on an antidepressant medication for at least 84 days (12 weeks).

[7] Represents the percentage of members who remained on an antidepressant medication for at least 180 days (6 months).

(continued)

Table B-1 (continued)
Healthy Connections Prime MMP performance on select HEDIS quality measures for 2016–2021[1] by MMP

[8] Represents percentage of members who initiate treatment through an inpatient AOD admission, outpatient visit, intensive outpatient encounter or partial hospitalization within 14 days of the diagnosis.
[9] Represents the percentage of members who initiated treatment and who had two or more additional services with a diagnosis of AOD within 30 days of the initiation visit.
[10] Plan all-cause readmissions are reported as an observed-to-expected ratio. A value below 1.0 is favorable and indicates that MMPs had fewer readmissions than expected for their populations based on case mix.
[11] Data are not available for this measure because eligibility criteria for the demonstration requires members to be 65 years or older.
[12] Measures for Outpatient visits and Emergency department visits (both within Ambulatory Care per 1,000 members) were retired from HEDIS in 2019. Therefore, MMPs did not provide HEDIS data for these measures for measurement years 2020 and 2021.
NOTES: Green and red color-coded shading indicates where performance over time for a given measure was steadily improving or worsening; green indicates a favorable trend, where red indicates an unfavorable one. To ensure accessibility for text readers and individuals with sight disabilities, cells shaded green or red receive, respectively, a superscript “G” or “R”. Detailed descriptions of HEDIS measures presented can be found in the RTI Aggregate Evaluation Plan.
SOURCE: RTI analysis of 2016 through 2021 HEDIS measures.

Appendix C

Comparison Group Methodology for the South Carolina Demonstration Years 4 and 5

This appendix presents the comparison group selection and assessment results for the Financial Alignment Initiative (FAI) demonstration in South Carolina.

Results for comparison group selection and assessment analyses are prepared for each demonstration year. The Second Evaluation Report for the South Carolina demonstration was publicly released in January 2022. This appendix describes the comparison group identification methodology in detail and provides the comparison group results for the fourth and fifth performance years of the South Carolina demonstration (January 1, 2019–December 31, 2020) and notes any major changes in the results corresponding to the first 3 demonstration years since the previous evaluation reports. Results for the fourth demonstration year are nearly identical to those for the fifth demonstration year and are omitted to conserve space.

C.1 Demonstration and Comparison Group Characteristics

The South Carolina demonstration area consists of 23 counties that are part of 10 Metropolitan Statistical Areas (MSAs) (Greenville-Anderson-Mauldin; Columbia; Hilton Head Island-Bluffton-Beaufort; Augusta-Richmond; Spartanburg; Charleston-North Charleston; Sumter; Charlotte-Concord-Gastonia; Myrtle Beach-Conway-North Myrtle Beach; and Florence) and 20 non-metropolitan counties in South Carolina. The comparison area is comprised of 32 counties in 11 MSAs from four States, plus 19 non-metropolitan counties in Virginia. The pool of States was limited to those with timely submission of Medicaid data to CMS. These geographic areas have not changed since the Second Evaluation Report.

Beneficiaries who are ineligible for the demonstration include those who are under age 65, have Medicare as a secondary payor, are not enrolled in Medicare Parts A and Part B, reside in an intermediate care facility, are enrolled in the Program of All-inclusive Care for the Elderly (PACE), or have end-stage renal disease (ESRD). We excluded those who reside in a nursing facility or who have enrolled in hospice without establishing an initial quarter of eligibility. We assess these exclusion criteria on a quarterly basis for the demonstration and comparison group in the predemonstration period and for the comparison group in the demonstration period. Finder files provided by the State are used to identify the eligible population for the demonstration group during the demonstration period, to which exclusion criteria are applied in order to ensure comparability with the comparison group and the demonstration group during the predemonstration period. Additionally, this analysis incorporates Medicaid-specific exclusion criteria using the Medicaid MAX and TAF enrollment and eligibility files. We excluded beneficiaries enrolled in Medicaid 1915(c) waivers other than those in HIV/AIDS, Community Choices, or Mechanical/Ventilation waivers from the demonstration group. We excluded these beneficiaries from the demonstration group only because 1915(c) waiver programs in the comparison group states do not necessarily target a similar population. We also excluded those who qualify for the medically needy Medicaid program from both the comparison group and the demonstration group.

MA enrollees are eligible and may opt-in to the South Carolina demonstration. This report includes the MA population in the cost savings analysis, described in ***Appendix F***. However, due to concerns of the completeness and accuracy of MA encounter data for years prior to 2016, RTI excluded the MA population from the service utilization analysis, described in ***Appendix E***. The population analyzed for the service utilization outcomes includes only

demonstration eligible full-benefit Medicare and Medicaid beneficiaries enrolled in Medicare FFS or in MMPs. ***Table C-1*** displays the number and percentage of beneficiaries who were in MA during the study period and included in the cost savings analysis but excluded from the service use analysis. The prevalence of beneficiaries ever enrolled in MA ranges from 63.9 to 75.2 percent in the demonstration group, and 41.4 to 55.6 percent in the comparison group across the study period.

Table C-1
Number and percentage of beneficiaries in the South Carolina demonstration and comparison groups enrolled in Medicare Advantage at any point during each period

Group	Predemonstration year 1	Predemonstration year 2	DY 1	DY 2	DY 3	DY 4	DY 5
Demonstration							
Initial count of beneficiaries	419,102	435,704	1,019,684	530,103	560,354	601,917	632,147
Count of beneficiaries with Medicare Advantage	267,583	288,930	723,724	398,647	418,410	443,117	445,800
Percentage of beneficiaries with Medicare Advantage	63.9%	66.3%	71.0%	75.2%	74.7%	73.6%	70.5%
Comparison							
Initial count of beneficiaries	457,950	479,520	1,040,837	519,797	531,319	541,156	546,147
Count of beneficiaries with Medicare Advantage	189,712	209,731	491,820	266,267	284,838	297,321	303,497
Percentage of beneficiaries with Medicare Advantage	41.4%	43.7%	47.3%	51.2%	53.6%	54.9%	55.6%

DY = demonstration year

Further analytic exclusions were performed such as: (1) removing beneficiaries with missing geographic information, (2) removing beneficiaries with zero months of eligibility during each analytic period, (3) removing beneficiaries who moved between the demonstration area and the comparison area any time during the entire study period, (4) removing beneficiaries with missing Hierarchical Condition Category (HCC) risk scores, and (5) removing beneficiaries who died before the beginning of each analytic period. After applying these exclusions, the number of demonstration group beneficiaries remained stable over the 2 predemonstration years, ranging between 35,494 and 36,975 beneficiaries per year. Demonstration years 1 through 5 saw modest increases in number of demonstration group beneficiaries, from 44,792 to 53,116 beneficiaries per year. The number of beneficiaries in the comparison group ranged between 39,187 and 48,083 for the predemonstration and demonstration years.

C.2 Propensity Score Estimates

RTI's methodology examines initial differences between the demonstration and comparison groups in each analysis period to produce propensity scores, a rating of how likely a

beneficiary is to be part of the demonstration group based on certain characteristics. Weights are calculated based on these scores and applied to the data to improve comparability between the two groups. Comparability is evaluated in terms of individual beneficiary characteristics and the overall distributions of propensity scores.

A propensity score (PS) is the predicted probability that a beneficiary is a member of the demonstration group conditional on a set of observed variables. Our PS models include a combination of beneficiary-level and region-level characteristics measured at the ZIP code (ZIP Code Tabulation Area) level.

The logistic regression coefficients and z-values for the covariates included in the propensity model for South Carolina demonstration year 5 are shown in ***Table C-2***, and the magnitude of the group differences for all variables prior to PS weighting is shown in ***Table C-3***. The largest relative differences were that demonstration participants were more likely to be Black, more likely to reside in an MSA, less likely to participate in other Medicare shared savings programs (other MDM) and tended to have a greater share of eligible months and months of non-MMP MA plan enrollment in demonstration year 5 than the beneficiaries in the comparison group. In addition, there were ZIP code-level group differences associated with percentage of married households, households with residents older than 60, households with residents under 18, and distances to the nearest hospital and nearest nursing facility (NF). The logistic regression findings for demonstration year 4 are very similar to those presented here for demonstration year 5.

C.3 Propensity Score Overlap

The distributions of PSs by group for demonstration year 5 are shown in ***Figure C-1*** before and after propensity score weighting. Estimated scores for both the demonstration and comparison groups topped out at around 0.99. The unweighted comparison group (dashed line) is characterized by a peak in predicted probabilities in the range from 0.30 to 0.60. Inverse probability of treatment weighting pulls the distribution of weighted comparison group propensity scores (dotted line) very close to that of the demonstration group (solid line).

Any beneficiaries who have estimated propensity scores below the smallest estimated value in the demonstration group are removed from the comparison group. This resulted in the removal of only 1 and 4 beneficiaries from the comparison group in demonstration years 4 and 5, respectively.

Table C-2
Logistic regression estimates for South Carolina propensity score models in demonstration year 5, January 1, 2020–December 31, 2020

Characteristic	Demonstration Year 5		
	Coef.	Standard error	z-score
Age (years)	−0.0053	0.0010	−5.48
Died during year (0/1)	−0.6101	0.0298	−20.47
Female (0/1)	0.2732	0.0161	17.01
Black (0/1)	0.4268	0.0153	27.81
Disability as original reason for entitlement (0/1)	−0.0158	0.0193	−0.82
ESRD (0/1)	0.4873	0.1415	3.44
Share of months eligible during year	−0.9338	0.0301	−31.07
Share of months Medicare Advantage plan enrollment during year	−0.2052	0.0163	−12.62
HCC risk score	0.0077	0.0087	0.89
Other MDM participation (0/1)	−1.5789	0.0263	−59.95
MSA (0/1)	0.0250	0.0206	1.21
% of population living in married household	−0.0156	0.0007	−23.78
% of households w/member >= 60 yrs.	0.0395	0.0010	40.23
% of households w/member < 18 yrs.	−0.0031	0.0012	−2.59
% of elderly with college education	0.0250	0.0007	35.68
% of elderly with self-care limitation	−0.0207	0.0014	−15.05
% of elderly unemployment	−0.0179	0.0011	−15.89
Distance to nearest hospital (mi.)	−0.0314	0.0017	−18.73
Distance to nearest nursing facility (mi.)	0.1597	0.0026	61.23
Intercept	−0.3506	0.1039	−3.38

ESRD = end-stage renal disease; HCC = Hierarchical Condition Category; MDM = Master Data Management; MSA = metropolitan statistical area.

Table C-3
South Carolina dually eligible beneficiary covariate means by group before and after weighting—demonstration year 5: January 1, 2020–December 31, 2020

Characteristic	Demonstration group mean	Comparison group mean	PS-weighted comparison group mean	E-balance-weighted comparison group mean	Unweighted standardized difference	PS-weighted standardized difference	E-balance-weighted standardized difference
Age (years)	74.239	74.791	74.366	74.251	0.070	0.016	0.002
Died during year (%)	7.388	8.712	8.223	7.462	0.049	0.031	0.003
Female (%)	67.368	67.230	67.776	67.030	0.003	0.009	0.007
Black (%)	55.482	40.805	47.320	52.995	0.297	0.164	0.050
Disability as original reason for entitlement (%)	17.663	16.744	17.827	17.585	0.024	0.004	0.002
ESRD (%)	0.416	0.182	0.386	0.374	0.043	0.005	0.007
Share of months eligible for demonstration during year	0.831	0.889	0.838	0.840	0.213	0.022	0.031
Share of months Medicare Advantage plan enrollment during year	0.508	0.454	0.492	0.514	0.115	0.036	0.012
HCC score	1.236	1.242	1.243	1.240	0.007	0.008	0.004
Other MDM participation (%)	4.801	20.989	5.265	5.292	0.498	0.021	0.022
MSA (%)	68.623	81.914	71.747	71.002	0.312	0.068	0.052
% of population living in married household	63.979	65.584	65.246	64.183	0.128	0.097	0.017
% of households w/member >= 60	44.030	39.342	44.332	43.426	0.487	0.030	0.068
% of households w/member < 18	28.198	30.072	28.086	28.365	0.273	0.016	0.026
% of elderly with college education	20.913	20.336	20.631	20.705	0.046	0.022	0.017

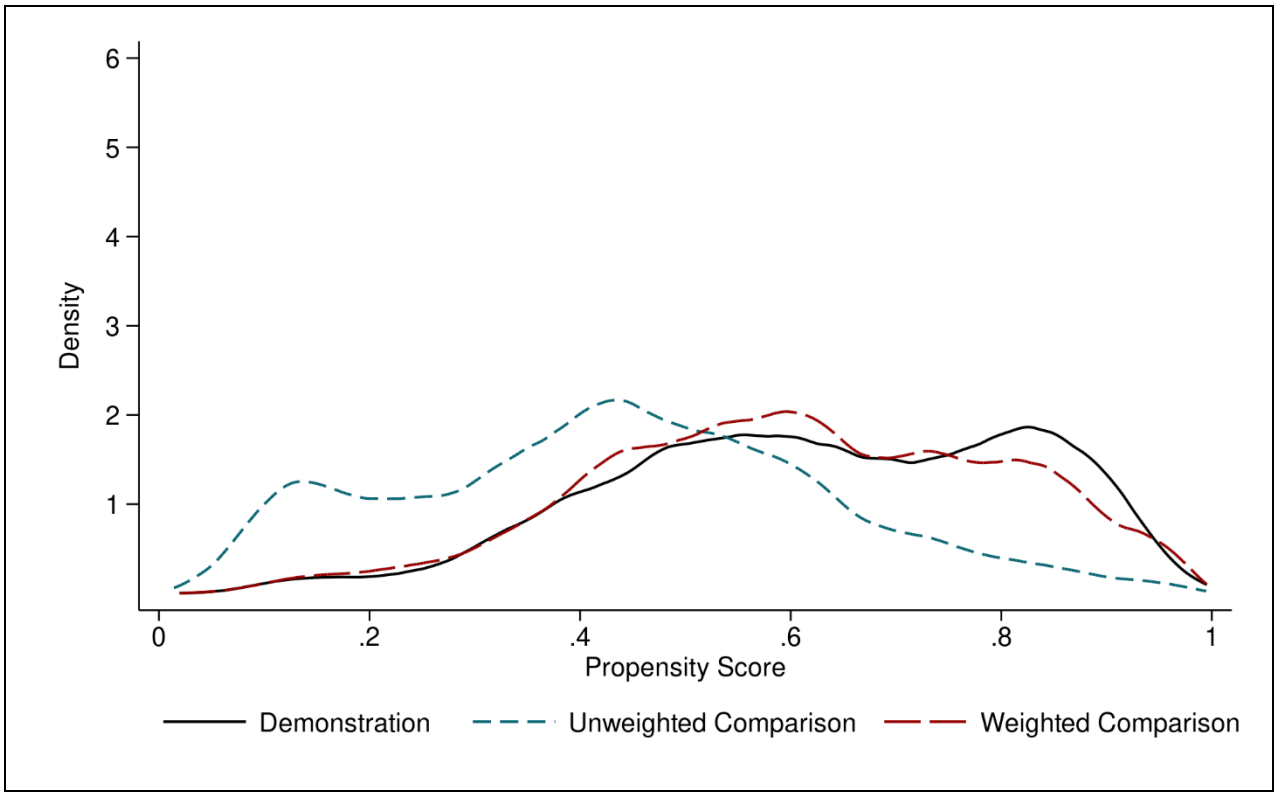
(continued)

Table C-3 (continued)
South Carolina dually eligible beneficiary covariate means by group before and after weighting—demonstration year 5: January 1, 2020–December 31, 2020

Characteristic	Demonstration group mean	Comparison group mean	PS-weighted comparison group mean	E-balance-weighted comparison group mean	Unweighted standardized difference	PS-weighted standardized difference	E-balance-weighted standardized difference
% of elderly with self-care limitation	8.496	8.882	8.255	8.639	0.071	0.044	0.026
% of elderly unemployed	2.918	3.256	2.723	3.006	0.053	0.032	0.013
Distance to nearest hospital (mi.)	10.511	8.322	9.732	10.119	0.353	0.123	0.058
Distance to nearest nursing facility (mi.)	8.168	5.609	7.724	7.551	0.592	0.092	0.129

ESRD = end-stage renal disease; HCC = Hierarchical Condition Category; MDM = Master Data Management; MSA = metropolitan statistical area; PS = propensity score.

Figure C-1
Distribution of beneficiary-level propensity scores in the South Carolina demonstration and comparison groups, weighted and unweighted, January 1, 2020–December 31, 2020



C.4 Group Comparability

Covariate balance refers to the extent to which the characteristics used in the PS are similar (or "balanced") between the demonstration and comparison groups. Group differences are measured by a standardized difference (the difference in group means divided by the pooled standard deviation of the covariate). An informal standard has been developed such that groups are considered comparable if the standardized covariate difference is less than 0.10 standard deviations.

The group means and standardized differences for all beneficiary characteristics are shown for demonstration year 5 in ***Table C-3***. The column of unweighted standardized differences indicates that several of these variables were not balanced prior to weighting. The following 10 variables had unweighted standardized differences exceeding 0.10 in absolute value: percent Black, share of months eligible for the demonstration, share of months enrolled in a non-MMP MA plan during the year, percent participating in other Medicare shared savings programs (other MDM), percent residing in an MSA, percent of population living in a married household, percent of households with members above the age of 60, percent of households with members below the age of 18, and the distances (in miles) to the nearest hospital and NF.

The results of propensity score weighting for South Carolina demonstration year 5 are illustrated in the column labeled PS-weighted standardized difference in ***Table C-3***. After applying propensity score weights, standardized differences were reduced to below the threshold level of 0.10 in absolute value for all but two of the covariates in our model: percent Black and distance to the nearest hospital. However, for the prior years, additional covariates remained out of balance (e.g., percent residing in an MSA and distance to the nearest NF).

When more than two covariates remain out of balance after propensity weighting, we consider e-balance weights as an alternative.[37] We took this approach for this study because of the number of covariates out of balance in years prior to demonstration year 5. Standardized differences after applying e-balance weights (shown in the column labeled e-balance-weighted standardized differences) were reduced to below the threshold level of 0.10 in absolute value for all covariates except one (distance to the nearest NF) for all years in this study. This indicates that the demonstration and comparison groups are adequately comparable after applying e-balance weights.

C.5 Enrollee-only Results

We also applied our weighting methodology to the demonstration's enrollee-only population (approximately 59 percent of the eligible demonstration population in demonstration year 5) to produce weights for use in the impact analyses on cost savings among the demonstration enrollee population. We define the enrollee group, along with its comparison group, as follows: (1) the demonstration enrollees are those with at least 3 months of enrollment during the 5-year demonstration period as well as 3 months of eligibility during the 2-year predemonstration period, and (2) the corresponding comparison group beneficiaries are those with at least 3 months of eligibility in both the 5-year demonstration period and the 2-year predemonstration period.

As was the case among all eligible beneficiaries, the unweighted values of several covariates differed substantially between the demonstration and comparison group among enrollees in each baseline and demonstration year. After applying e-balance weights, the standardized differences for all covariates were reduced to less than 0.10 in absolute value.

C.6 Weights for Service Utilization Analyses

A third set of weights was produced specifically for the analyses of service utilization with two adaptations to the methodology used to produce weights for all eligible beneficiaries. The first is the explicit exclusion of beneficiaries who were ever enrolled in an MA plan. Due to concerns of the completeness and accuracy of MA encounter data for years prior to 2016, RTI excluded the MA population from the service utilization analysis. The second difference is the exclusion of beneficiaries who were ever enrolled in an MMP for which complete or valid encounter data is not available.

These exclusions reduced the number of beneficiaries by roughly 20,000 to 30,000 beneficiaries per year in the demonstration group and by roughly 15,000 to 25,000 beneficiaries per year in the comparison group. The resulting demonstration group sample ranged between

[37] Entropy balancing (e-balancing) is a statistical method for matching treatment and control observations.

10,258 and 15,035 beneficiaries each year; the comparison group sample ranged between 20,542 and 25,117 beneficiaries each year.

Despite difference in sample sizes, the results of the weighting analysis were similar to those for demonstration eligible beneficiaries and for demonstration enrollees. While the unweighted values of several covariates differed substantially between the demonstration and comparison group in each baseline and demonstration year, the standardized differences of all covariates were reduced to less than 0.10 in absolute value after e-balance weighting.

C.7 Summary

The South Carolina demonstration and comparison groups were initially distinguished by differences in three individual-level covariates and seven area-level variables. However, e-balance weighting successfully reduced all but one of these covariate discrepancies to below the generally accepted threshold for standardized differences. As a result, the weighted South Carolina groups are adequately balanced with respect to 18 of the 19 variables we consider for comparability. Further analysis of the enrollee group and the service utilization group yielded similar results to the main analysis on the all-eligible population presented in this appendix.

Appendix D

Service Utilization Methodology

D.1 Methodology

This appendix briefly describes the overall quantitative evaluation design, the data used, and the populations and measures analyzed.

D.1.1 Evaluation Design

RTI International is using an intent-to-treat (ITT) approach for the quantitative analyses conducted for the evaluation, comparing the eligible population under each State demonstration with a similar population that is not affected by the demonstration (i.e., a comparison group). We use a quasi-experimental difference-in-differences (DinD) regression analysis with inverse propensity weighting to estimate the impact of the demonstration on the change in the probability or frequency of service utilization outcomes, relative to the comparison group.

ITT refers to an evaluation design in which all dually eligible beneficiaries eligible for the demonstration constitute the evaluation sample, regardless of whether they were actually enrolled in an MMP. This approach alleviates concerns of selection bias and supports generalizability of the results among the demonstration eligible population. Given the design of the demonstration, some eligible beneficiaries enroll in the demonstration to receive the interventions while others do not enroll, even though they are eligible. The relative proportion of the enrolled versus the eligible but not enrolled beneficiaries varies across the demonstration states. An ITT analysis—which includes the entire eligible population in the demonstration group and its comparison group counterpart—is most appropriate by yielding impact estimates that would best mimic the real-world implementation of the demonstration accounting for the variability in voluntary enrollment across different states. A limitation to this approach is that if total enrollment in the demonstration is low, observable impacts for the enrolled population may be more difficult to observe.

D.1.2 Sample Selection

The study population includes all full-benefit Medicare-Medicaid eligible beneficiaries residing in the demonstration and comparison areas who meet the demonstration eligibility criteria. For details on applying the demonstration eligibility criteria and the comparison group identification strategy, see ***Appendix C***. This analysis also includes the application of the demonstration's medically needy and 1915(c) waiver exclusion criteria, identified in the three-way contract on the FAI website.[38] The Second Evaluation Report did not include this exclusion due to the availability and reliability of Medicaid eligibility data for all years.

MA enrollees are eligible and may opt-in to the South Carolina demonstration. This report includes the MA population in the cost savings analysis, described in ***Appendix F***. However, due to concerns on the completeness and accuracy of MA encounter data for years prior to 2016, RTI excluded demonstration eligible beneficiaries with any MA enrollment from the service utilization analysis. Therefore, the service utilization analysis includes only beneficiaries enrolled in Medicare FFS or in an MMP throughout the study period. The prevalence of beneficiaries with any month of MA during a year, prior to exclusion, ranges from

[38] For the three-way contract, please see https://www.cms.gov/files/document/sccontract.pdf

63.9 to 75.2 percent in the demonstration group, and 41.4 to 55.6 percent in the comparison group during the predemonstration and demonstration periods (see ***Appendix C, Table C-1***).

D.1.3 Data

Evaluation report analyses used data from several sources. First, the State provided quarterly finder files containing identifying information on all demonstration eligible beneficiaries in the demonstration period. Second, RTI obtained Medicare and Medicaid administrative data on beneficiary demographic, enrollment, and service use characteristics from CMS data systems for both demonstration and comparison group members. Third, these administrative data were merged with Medicare claims data on utilization and costs of Medicare services, MMP Medicare and Medicaid encounter data, as well as the Minimum Data Set (MDS).

D.1.4 Populations and Services Analyzed

The populations analyzed in the report include all demonstration eligible beneficiaries, as well as the following special populations: those receiving any LTSS; those with any behavioral health service use in the last 2 years for serious and persistent mental illness (SPMI); demonstration enrollees; and groups by race/ethnicity.

- ***Demonstration eligible beneficiaries.*** A full-benefit Medicare-Medicaid eligible beneficiary in a quarter who met any other specific demonstration eligibility criteria.
  - Beneficiaries in the demonstration period are identified from quarterly State finder files.
  - Beneficiaries in the 2-year predemonstration period are identified by applying the eligibility criteria in each separate predemonstration quarter.
- ***LTSS.*** A demonstration eligible beneficiary with any use of institutional or home and community-based services (HCBS) during the observation year.
- ***SPMI.*** A demonstration eligible beneficiary with at least one inpatient or outpatient mental health visit for schizophrenia or episodic mood disorder within the previous 2 years of the observation year.
- ***Enrollees.*** A demonstration eligible beneficiary with any month of enrollment in the demonstration during the demonstration year.

The analyses were conducted for each year in the 2-year predemonstration period (February 1, 2013 to January 31, 2015) and for the 5 demonstration years (February 1, 2015 to December 31, 2020) for both the demonstration and comparison groups.

Table D-1 presents descriptive statistics on the independent variables used in multivariate DinD regressions for impact analyses. Independent variables include demographic and health characteristics and market- and area-level characteristics.

The PHE began in 2020 and may have influenced beneficiary access to, and use of, services differently depending on where the beneficiary resides, and how the pandemic spread

through their community. To control for the influence of the PHE on service utilization outcomes, we included the Pandemic Vulnerability Index (PVI).[39] The PVI is a continuous county-based measure that incorporates current infection rates, testing and vaccination rates, and health and environmental factors to create an overall regression-adjusted risk score.

This section also includes descriptive results presented for six groups: all demonstration eligible beneficiaries in the FAI State, its comparison group, all MMP enrollees, all non-MMP enrollees, demonstration eligible beneficiaries with any LTSS use, and demonstration eligible beneficiaries with an SPMI.

The most prevalent age group was age 65 to 74 years, at roughly 63 percent in the demonstration and comparison groups. The racial and ethnic distribution was about the same between the demonstration and comparison groups. Among the LTSS user demonstration population, the majority were African American (58.33 percent), and among those with SPMI in the demonstration population, the majority were white (65.59 percent).

Across all groups, most beneficiaries were female (61.43 to 73.21 percent), did not have disability as the primary reason for Medicare entitlement, did not have ESRD, and were more likely to reside in a metropolitan area.

The HCC score is a measure of the predicted relative annual cost of a Medicare beneficiary based on the diagnosis codes present in recent Medicare claims. Beneficiaries with a score of 1 are predicted to have average cost in terms of annual Medicare expenditures. Beneficiaries with HCC scores less than 1 are predicted to have below average costs, whereas beneficiaries with scores of 2 are predicted to have twice the average annual cost. HCC scores ranged between 1.04 and 1.10 among all groups except LTSS users and those with SPMI in the demonstration group, for which the average HCC score was 1.76 and 1.24, respectively.

[39]Marvel, S. W., House, J. S., Wheeler, M., Song, K., Zhou, Y., Wright, F. A., Chiu, W. A., Rusyn, I., Motsinger-Reif, A., & Reif, D. M. (2020). The COVID-19 Pandemic Vulnerability Index (PVI) Dashboard: Monitoring county-level vulnerability using visualization, statistical modeling, and machine learning. medRxiv. https://doi.org/10.1101/2020.08.10.20169649

Table D-1
Characteristics of eligible beneficiaries in South Carolina, demonstration year 5, by group

Characteristics	Demonstration group	Comparison group	Demonstration group, enrollees	Demonstration group, non-enrollees	Demonstration group, LTSS users	Demonstration group, SPMI diagnosis
Weighted number of eligible beneficiaries	15,035	20,542	8,890	6,145	528	4,222
Demographic characteristics						
Age						
65 to 74	63.40	62.17	65.24	60.73	36.36	63.24
75 to 84	22.85	23.44	22.37	23.53	33.71	23.97
85 and older	13.75	14.39	12.37	15.74	29.92	12.79
Female						
No	36.22	36.61	38.57	32.81	28.03	26.79
Yes	63.78	63.39	61.43	67.19	71.97	73.21
Race/ethnicity						
White	48.19	48.60	44.09	54.11	39.77	65.59
African American	46.11	44.38	49.56	41.12	58.33	31.67
Hispanic	1.55	1.61	1.88	1.07	0.57	1.07
Asian	1.98	2.75	2.20	1.66	0.95	0.66
Other	2.17	2.67	2.26	2.03	0.38	1.02
Disability as reason for original Medicare entitlement						
No	84.98	85.05	84.03	86.35	73.86	78.71
Yes	15.02	14.95	15.97	13.65	26.14	21.29
ESRD status						
No	99.59	99.66	99.40	99.87	99.43	99.41
Yes	0.41	0.34	0.60	0.13	0.57	0.59
MSA						
No	32.01	31.24	31.09	33.34	32.20	28.90
Yes	67.99	68.76	68.91	66.66	67.80	71.10

(continued)

Table D-1 (continued)
Characteristics of eligible beneficiaries in South Carolina, demonstration year 5, by group

Characteristics	Demonstration group	Comparison group	Demonstration group, enrollees	Demonstration group, non-enrollees	Demonstration group, LTSS users	Demonstration group, SPMI diagnosis
Participating in Shared Savings Program						
No	86.27	85.67	99.96	66.46	91.48	81.86
Yes	13.73	14.33	0.04	33.54	8.52	18.14
HCC score	1.07	1.08	1.04	1.10	1.76	1.24
Market characteristics						
Medicare spending per dual, ages 19+ ($)	16,432.00	16,305.73	16,435.36	16,427.14	16,442.19	16,438.94
MA penetration rate	0.21	0.19	0.21	0.21	0.22	0.22
Medicaid-to-Medicare fee index (FFS)	0.80	0.79	0.80	0.80	0.80	0.80
Medicaid spending per dual, ages 19+ ($)	8,800.54	12,243.74	8,783.67	8,824.96	8,837.31	8,885.21
Fraction of dually eligible beneficiaries using NF, ages 65+	0.16	0.22	0.16	0.16	0.16	0.16
Fraction of dually eligible beneficiaries using HCBS, ages 65+	0.14	0.14	0.14	0.14	0.14	0.14
Fraction of dually eligible beneficiaries using personal care, ages 19+	0.14	0.14	0.14	0.14	0.14	0.14
Fraction of dual eligible beneficiaries with Medicaid managed care, ages 19+	0.00	0.00	0.00	0.00	0.00	0.00
Population per square mile, all ages	181.46	251.70	183.86	177.98	189.21	190.15
Patient care physicians per 1,000 population	0.66	0.64	0.66	0.66	0.67	0.67

(continued)

Table D-1 (continued)
Characteristics of eligible beneficiaries in South Carolina, demonstration year 5, by group

Characteristics	Demonstration group	Comparison group	Demonstration group, enrollees	Demonstration group, non-enrollees	Demonstration group, LTSS users	Demonstration group, SPMI diagnosis
Area characteristics						
% of population living in married households	64.42	64.62	64.33	64.54	64.43	65.70
% of adults with college education	21.31	20.92	21.53	21.00	20.09	21.04
% of adults with self-care limitations	8.34	8.42	8.29	8.41	8.81	8.34
% of adults unemployed	2.78	2.84	2.75	2.82	3.31	2.88
% of household with individuals younger than 18	28.29	28.40	28.15	28.50	27.90	28.47
% of household with individuals older than 60	44.07	43.76	44.02	44.14	44.59	43.52
Distance to nearest hospital	10.51	10.35	10.45	10.59	10.56	10.05
Distance to nearest nursing facility	8.16	7.90	8.12	8.20	8.28	7.84
Pandemic Vulnerability Index	0.55	0.52	0.55	0.55	0.55	0.55

ESRD = end-stage renal disease; FFS = fee-for-service; HCBS = home and community-based services; HCC = Hierarchical Condition Category; LTSS = long-term services and supports; NF = nursing facility; MA = Medicare Advantage; MSA = metropolitan statistical area; SPMI = serious and persistent mental illness.
NOTE: Analysis conducted on demonstration eligible FFS population and Medicare-Medicaid Plan enrollees.

There were some differences in area- and market-level characteristics. Those who were in the comparison group resided in counties with higher Medicaid spending per dually eligible beneficiary ($12,234 versus $8,800 in the demonstration group) and higher population density (251.70 people per square mile versus 181.46 people per square mile in the demonstration group). Other area- and market-level characteristics were comparable.

D.1.5 Descriptive and Regression Outcomes

This report presents several measures on various aspects of service utilization, access to care, cost, quality of care and care coordination. There are 12 settings analyzed using Medicare claims data which include both institutional and community settings: inpatient admission, including psychiatric and non-psychiatric, emergency department (ED) visits and ED psychiatric visits, observational stays, SNF stays, hospice use, primary care, outpatient therapy (PT, OT, ST), independent therapy, and other hospital outpatient services.

We also calculate descriptive statistics for the following quality of care measures: 30-day all-cause risk-standardized readmission rate, preventable ED visits, 30-day follow-up after hospitalization for mental illness, ambulatory care sensitive condition (ACSC) admissions overall and chronic (Agency for Healthcare Research and Quality [AHRQ] Prevention Quality Indicator [PQI] #90 and PQI #92), depression screening, and pneumococcal vaccinations.

Table D-2 presents additional details on these measures and the service utilization measures used in the outcome regression models.

D.1.6 Nursing Facility-Related Measures

Two measures of annual NF-related utilization are derived from the MDS. Characteristics of new long-stay NF residents at admission are also included to monitor nursing facility case mix and acuity levels.

- NF admission rate
- Percentage of long-stay NF users
- Functional status of new long-stay NF residents
- Percent of new long-stay NF residents with severe cognitive impairment
- Percent of new long-stay NF residents with a low level of care need.

The rate of new long-stay NF admissions per 1,000 eligible beneficiaries is calculated as the number of NF admissions for whom there is no record of NF use in the 100 days prior to the current admission and who subsequently stay in the NF for 101 days or more. Individuals are included in this measure only if their NF admission occurred after their first month of demonstration eligibility.

The percentage of long-stay NF users is calculated as the number of individuals who have stayed in an NF for 101 days or more, who were long-stay in their last quarter of demonstration eligibility. The probability of any long-stay NF use includes both new admissions from the community and continuation of a stay in an NF.

Characteristics of new long-stay NF residents at admission are also included to monitor nursing facility case mix and acuity levels. Functional status and low level of care need are determined by the Resource Utilization Groups Version IV (RUG-IV). Residents with low care need are defined as those who did not require physical assistance in any of the four late-loss activities of daily living and who were in the three lowest RUG-IV categories. Severe cognitive impairment is assessed by the Brief Interview for Mental Status, poor short-term memory, or severely impaired decision-making skills.

Table D-2
Detailed definitions and measure specifications for the utilization, quality of care, and nursing facility-related outcome measures

Outcome measure	Definition	Detailed specifications
Monthly probability of any inpatient admission	The monthly probability of having any inpatient admission in which a beneficiary has an admission date within the observed month. Inpatient admissions include acute, inpatient rehabilitation, and long-term care hospital admissions.	We used the CLM_ACTV_CARE_FROM_DT to calculate the number of admissions occurring within the month. • Created a 0–1 indicator for the presence of at least one admission in the month.
Monthly probability of any ED visit	The monthly probability of having any ED visit that occurred during the month that did not result in an inpatient admission.	• Identified any claim with a revenue center code = 0450, 0451, 0452, 0456, 0459, or 0981 AND not followed by an inpatient admission. • Created a 0–1 indicator for the presence of at least one ED claim in the month.
Monthly number of physician E&M visits per 1,000 beneficiaries	The count of any E&M visit within the month, multiplied by 1,000, where the visit occurred in the outpatient or office setting, NF, domiciliary, rest home, or custodial care setting, a federally qualified health center or a rural health center.	• Identified physician office visits on either any physician claim line, federally qualified health center claim line, or rural health center claim line: – Office or Other Outpatient = 99201–99205 or 99211–99215 – Nursing Facility Services = 99304–99310, 99315, 99316, or 99318 – Domiciliary, Rest Home, or Custodial Care Services = 99324–99328, 99334–99337 or 99339-99340 – Home Services = 99341-99345 or 99347–99350 – Initial Medicare Visit = G0402 – Annual Wellness Visit = G0438, G0439 • Calculated the total number of physician office visits that occurred in the month.
Monthly probability of any SNF admissions	The monthly probability of having any SNF admission within the month.	• Identified any SNF claims with a clam type code = 4018, 4021, or 4028. • Created a 0-1 indicator for the presence of at least one *admission* in the month using CLM_ACTV_CARE_FROM_DT.

(continued)

Table D-2 (continued)
Detailed definitions and measure specifications for the utilization, quality of care, and nursing facility-related outcome measures

Outcome measure	Definition	Detailed specifications
Annual probability of any long-stay NF use	The annual probability of residing in an NF for 101 days or more during the year.	• Long-stay use is defined as a stay in an NF for 101 days or more as of a beneficiary's last quarter of demonstration eligibility and is derived from the Minimum Data Set (MDS).
30-day all-cause risk-standardized readmission	The rate of risk-standardized readmission, defined as the percentage of enrollees who were readmitted within 30 days following a hospital discharge, and the number of risk-standardized readmissions that occur during the year.	For both the numerator and denominator, identified all acute inpatient stays with a discharge date during the measurement period. Beneficiaries are included only if eligible during the month(s) of admission and discharge and during the 30-day follow-up period. $\frac{\left(\frac{\sum_{ig} x_{ig}}{\sum_{ig} n_{ig}} * C\right)}{Prob_g} * 100$ Numerator: • C = the national average of 30-day readmission rate, 0.238. • x_{ig} = the total number of readmissions for individual *i* in group *g*. • n_{ig} = the total number of hospital admissions for individual i in group g. Denominator: $Prob_g$ = the annual average adjusted probability of readmission for individuals in group *g*. Multiply by 100 to get the final measure score.
Number of all-cause 30-day readmissions per 1,000 discharges	The annual count of the number of readmissions per beneficiary period, multiplied by 1,000.	Among beneficiaries with any index inpatient admission, defined above, a readmission is defined as the having any inpatient admission within 30-days of the index discharge date
Monthly number of preventable ED visits per 1,000 beneficiaries	A continuous variable of weighted ED visits that occur during the month, multiplied by 1,000.	Numerator: Sum of the relative percentage of ED visits per diagnosis (see 1–4 below) for conditions that are either preventable/avoidable or treatable in a primary care setting.[1] The algorithm uses four categories for ED utilization, 1–3 are included in the numerator for this measure, and 4 is excluded: (1) Non-emergent (2) Emergent/primary care treatable (3) Emergent/ED care needed – preventable/avoidable (4) *Excluded* – Emergent/ED care needed – not preventable/avoidable Denominator: All demonstration eligible Medicare-Medicaid beneficiaries.

(continued)

Table D-2 (continued)
Detailed definitions and measure specifications for the utilization, quality of care, and nursing facility-related outcome measures

Outcome measure	Definition	Detailed specifications
Probability of 30-day follow-up after mental health discharge (NQF #576)	The monthly probability of any follow-up visits within 30-days post-hospitalization for a mental illness.	Numerator: Outpatient or carrier visit with a mental health provider within 30 days from the inpatient discharge. One of the following must be met to be included: • Visit with a mental health practitioner AND SPMI diagnosis • Visit to a behavioral health care facility • Visit to a non-behavioral health care facility with a diagnosis of mental illness Denominator: Discharges for an acute inpatient setting (including acute-care psychiatric facilities) for treatment of SPMI AND no readmission within 30 days. Beneficiaries are included only if eligible during both the month of the discharge and the 30-day follow-up period.
Monthly probability of any ACSC admission—overall composite (AHRQ PQI #90)	The monthly probability of any acute discharge that meet the AHRQ PQI #90 (Prevention Quality Overall Composite) criteria within the month.	Numerator: Total number of discharges that meet the inclusion and exclusion criteria for 12 PQIs for ambulatory care sensitive conditions, including diabetes—short-term complications (PQI #1); diabetes—long-term complications (PQI #3); COPD or asthma (PQI #5); hypertension (PQI #7); heart failure (PQI #8); dehydration (PQI #10); bacterial pneumonia (PQI #11); UTI (PQI #12); angina without procedure (PQI #13); uncontrolled diabetes (PQI #14); asthma in younger adults (PQI #15); lower-extremity amputations among diabetics (PQI #16) Denominator: All demonstration eligible Medicare-Medicaid beneficiaries.
Monthly probability of any ACSC admission—chronic composite (AHRQ PQI #92)	The monthly probability of any acute discharge that meet the AHRQ PQI #92 criteria within the month.	Numerator: Total number of discharges that meet the inclusion and exclusion criteria for eight PQIs for ambulatory care sensitive chronic conditions including diabetes—short-term complications (PQI #1); diabetes—long-term complications (PQI #3); COPD or asthma (PQI #5); hypertension (PQI #7); heart failure (PQI #8); uncontrolled diabetes (PQI #14); asthma in younger adults (PQI #15); lower-extremity amputations among diabetics (PQI #16) Denominator: All demonstration eligible Medicare-Medicaid beneficiaries.

(continued)

Table D-2 (continued)
Detailed definitions and measure specifications for the utilization, quality of care, and nursing facility-related outcome measures

Outcome measure	Definition	Detailed specifications
Depression screening and follow-up	Number of depression screenings and positive tests, and per eligible beneficiary per month.	Numerator: Demonstration eligible Medicare-Medicaid beneficiaries whose screening for clinical depression using an age-appropriate standardized tool: • Received a depression screening, tested positive and had a follow-up plan is identified by CLM_LINE_HCPCS_CD = 'G8431'. • Received a depression screening, tested positive and follow-up plan not required is identified by CLM_LINE_HCPCS_CD = 'G8510'. • Received a depression screening, tested positive and not eligible for follow-up plan is identified by CLM_LINE_HCPCS_CD = 'G8940'. • Received a depression screening, tested positive, no follow-up plan and reason not documented is identified by CLM_LINE_HCPCS_CD = 'G8511'. Denominator: All demonstration eligible Medicare-Medicaid beneficiaries.
Pneumococcal vaccination for eligible beneficiaries 65 years and older	This is calculated as the average monthly number of beneficiaries receiving a pneumococcal vacation during the demonstration year.	Numerator: Demonstration eligible beneficiaries age 65 or older who received a Pneumococcal vaccination or previously received the vaccination in this month. • Received a Pneumococcal vaccination or previously received the vaccination is identified by CLM_LINE_HCPCS_CD = '4040F' **AND** HCPCS_1_MDFR_CD ≠ '8P' **AND** HCPCS_2_MDFR_CD ≠ '8P.' Denominator: Demonstration eligible beneficiary who was 65 years or older during the observation month.

[1] Definition derived from the Wagner School of Public Service, available at https://wagner.nyu.edu/faculty/billings/nyued-background

ACSC = ambulatory care sensitive condition; AHRQ = Agency for Healthcare Research and Quality; ED = emergency department; E&M = evaluation and management; NF = nursing facility; PQI = Prevention Quality Indicator; SNF = skilled nursing facility; SPMI = serious and persistent mental illness.

D.1.7 Descriptive Statistics and Regression Methodology for Determining Demonstration Impact

Descriptive statistics. For any health care service type, we calculate average monthly utilization per 1,000 eligible months, the average monthly utilization per 1,000 user months (i.e., a user month is month in which there was any use of the service), and the average monthly percentage with any use of the service. Because full-benefit dual eligibility status for the demonstration can vary by month over time for any individual, the analytic observations are at the monthly level. We calculate monthly averages by predemonstration and demonstration year, which account for the variation in demonstration eligibility that any one beneficiary may have.

Specifically, the utilization measures were calculated as the aggregate sum of the unit of measurement (counts, admissions, etc.) divided by the aggregated number of eligible member months (and user months) within each demonstration and comparison group by analytic year. We weight all of the descriptive statistics using inverse PS weighting, described in ***Appendix C***. ***Appendix E*** contains the descriptive tables with these results.

In addition, six quality of care and care coordination measures representing specific utilization types of interest are presented in the report. Similar to the utilization and expenditure measures, the quality of care and care coordination measures were calculated as the aggregated sum of the numerator divided by the aggregated sum of the denominator for each respective outcome within each beneficiary group.

Table D-3 displays the average adjusted probabilities for the overall eligible population used for defining the 30-day all-cause risk-standardized readmission measure.

Table D-3
Average adjusted probability of readmission in South Carolina, by demonstration group

Demonstration group	Average adjusted probability of readmission
Predemonstration year 1	
South Carolina	0.1697
Comparison	0.1706
Predemonstration year 2	
South Carolina	0.1681
Comparison	0.1754
Demonstration year 1	
South Carolina	0.1609
Comparison	0.1770
Demonstration year 2	
South Carolina	0.1530
Comparison	0.1698

(continued)

Table D-3 (continued)
Average adjusted probability of readmission in South Carolina, by demonstration group

Demonstration group	Average adjusted probability of readmission
Demonstration year 3	
South Carolina	0.1510
Comparison	0.1698
Demonstration year 4	
South Carolina	0.1548
Comparison	0.1691
Demonstration year 5	
South Carolina	0.1568
Comparison	0.1670

DinD approach. To estimate the demonstration impact on our selected outcome measures, we conducted a multivariate DinD regression model with inverse PS weighting. We estimated two general types of models. The first model estimated the demonstration effect on the outcome over the entire demonstration period.

$$\text{Dependent variable}_i = F(\beta_0 + \beta_1 \text{PostYear} + \beta_2 \text{Demonstration} +$$

$$\beta_3 \text{PostYear} * \text{Demonstration} + \beta_4 \text{Demographics} + \beta_{5\text{-}j}\, \text{Market} + \varepsilon)$$

where *PostYear* is an indicator of whether the observation is post the demonstration start, *Demonstration* is an indicator of whether the beneficiary was in the demonstration group, and *PostYear* * *Demonstration* is an interaction term. *Demographics* and *Market* represent vectors of beneficiary and market characteristics, respectively.

Under this specification, the coefficient β_0 reflects the comparison group predemonstration period mean adjusted for demographic and market effects, β_1 reflects the average difference between post period and predemonstration period in the comparison group, β_2 reflects the difference in the demonstration group and comparison group at predemonstration, and β_3 is the overall average demonstration effect during the demonstration period. This last term is the DinD estimator and the primary policy variable of interest, but in all regression models, because of nonlinearities in the underlying distributions, post-regression predictions of demonstration impact are performed to obtain the marginal effects of demonstration impact.

In addition, we also produce an annual effects model to estimate the demonstration impact per year:

$$\text{Dependent variable} = F\,(\beta_0 + \beta_{1\text{-}k}\text{PostYear}_{1\text{-}n} + \beta_2 \text{Demonstration} +$$

$$\beta_{3\text{-}k}\text{PostYear}_{1\text{-}n} * \text{Demonstration} + \beta_4\, \text{Demographics} + \beta_{5\text{-}j}\, \text{Market} + \varepsilon)$$

This equation differs from the previous one in that separate DinD coefficients are estimated for each year. Under this specification, the coefficients $\beta_{3\text{-}k}$ would reflect the impact of the demonstration in each respective year, whereas the previous equation reflects the impact of the entire demonstration period. Depending on the outcome of interest, we estimated the equations using logistic regression, Generalized Linear Models with a log link and gamma distribution, or count models such as negative binomial (e.g., for the number of monthly physician visits).

We used regression results to calculate the marginal effects of demonstration impact. To account for correlation in the error terms, we used clustered standard errors at the county level.

Two outcomes are modelled at a beneficiary-period level. Both the annual probability of any long-stay nursing home visit and the annual number of readmissions are estimated at a beneficiary-period level. This approach requires the use of an additional control variable to account for the variation of exposure to the potential outcome.

Impact estimates across the entire demonstration period are determined using the DinD methodology and presented in figures for all demonstration eligible beneficiaries. We present a table displaying the cumulative estimate along with the adjusted means for each group and time period for the eligible population. We also display figures showing the annual effects of the demonstration among the overall eligible population. In each figure, the point estimate is displayed for each measure, as well as the 95 percent confidence interval. If the confidence interval includes the value of zero, it is not statistically significant at that confidence level.

To determine whether the demonstration had an effect on the SPMI and LTSS populations, a triple interaction term is used to estimate the interaction effect of each special population (i.e., Demonstration * Post * LTSS). In ***Section 5, Demonstration Impact on Service Utilization and Quality of Care*** we report the cumulative DinD estimates for both the special population of interest and the rest of the eligible population and test the difference in the demonstration effect for each estimate. Annual triple-DinD results are shown in ***Appendix E, Tables E-2*** and ***E-3.***

The adjusted means tables presented for the full demonstration eligible population in the report provide both DinD results as well as accompanying adjusted mean values that allow direct comparisons regarding service utilization and costs across the predemonstration and demonstration periods, separately for the demonstration and comparison groups. To make meaningful comparisons for the adjusted mean value results, we needed to take into account any differences in population characteristics across the four groups. To do this, we replaced the data values for all demographic, health, and area-related characteristics in each group to be those of the comparison group in the demonstration period, which we selected as the reference group.

The steps involved in this process for each type of outcome measure are:

1. *Run* the regression estimating the probability or level of service use or costs.

2. *Predict* DinD (last two columns in each adjusted means table).

3. *Replace* the data values for three of the four groups to be those of the comparison group in the demonstration period so all four groups have the same population characteristics.

4. *Predict* the regression-adjusted mean for each of the four groups using the regression coefficients stored from Step 1.

The DinD estimate is also provided for reference, along with the *p*-value and the relative percent change of the DinD estimate compared to an average mean value for the comparison group in the entire demonstration period. The relative percent annual change for the DinD estimate for each outcome measure is calculated as [Overall DinD effect] / [Adjusted mean outcome value of comparison group in the demonstration period].

Table D-4 provides an illustrative example of the regression output for each independent variable in the logistic regression on monthly inpatient admissions across the entire demonstration period.

Table D-4
Logistic regression results on monthly inpatient admissions in South Carolina
(n = 2,720,944 person months)

Independent variables	Coefficient	Standard error	z-value	*p*-value
Post period	−0.1493	0.0229	−6.52	<0.001
Demonstration group	−0.1180	0.0606	−1.95	0.052
Interaction of post period x demonstration group	−0.2082	0.0270	−7.72	<0.001
Age (continuous)	0.0122	0.0010	12.34	<0.001
Female	−0.1459	0.0216	−6.76	<0.001
Black	−0.1544	0.0212	−7.27	<0.001
Hispanic	−0.6701	0.0664	−10.09	<0.001
Asian	−0.8426	0.0542	−15.54	<0.001
Other race/ethnicity	−0.5330	0.0778	−6.85	<0.001
Disability as reason for Medicare entitlement	0.0225	0.0247	0.91	0.362
End-stage renal disease	1.1745	0.0867	13.55	<0.001
Participation in other Shared Savings Program	0.1335	0.0214	6.25	<0.001
Hierarchical Condition Category score	0.3942	0.0092	42.95	<0.001
Metropolitan statistical area residence	0.0663	0.0668	0.99	0.321
Medicare spending per dual, ages 19+	0.0000	0.0000	−1.19	0.236
Percent of population married	−0.0020	0.0007	−2.76	0.006
Medicare Advantage penetration rate	0.0418	0.4511	0.09	0.926
Medicaid-Medicare fee index	1.7707	0.6481	2.73	0.006
Fraction of dually eligible beneficiaries using nursing facility, ages 65+	−0.5797	0.6343	−0.91	0.361

(continued)

Table D-4 (continued)
Logistic regression results on monthly inpatient admissions in South Carolina
(n = 2,720,944 person months)

Independent variables	Coefficient	Standard error	z-value	*p*-value
Fraction of dually eligible beneficiaries using HCBS, ages 65+	0.0163	0.4099	0.04	0.968
Fraction of dually eligible beneficiaries using personal care, ages 19+	−0.0760	0.4630	−0.16	0.870
Population per square mile, all ages	−0.0004	0.0002	−1.77	0.077
Patient care physicians per 1,000 population	0.1776	0.1782	1.00	0.319
Percent of elderly with college education	−0.0028	0.0009	−3.09	0.002
Percent of elderly who are unemployed	−0.0010	0.0011	−0.98	0.326
Percent of elderly with self-care limitation	0.0007	0.0018	0.40	0.689
Distance to nearest hospital	0.0005	0.0019	0.26	0.793
Distance to nearest nursing facility	−0.0020	0.0022	−0.89	0.371
Percent of households with individuals younger than 18	0.0023	0.0021	1.08	0.281
Percent of households with individuals older than 60	0.0005	0.0018	0.26	0.795
Pandemic Vulnerability Index	−0.2377	0.0370	−6.42	<0.001
Intercept	−5.1188	0.8106	−6.31	<0.001

HCBS = home and community-based services.

Appendix E

Descriptive and Special Population Supplemental Analysis

Tables E-1, ***E-2***, and ***E-3*** provide the regression-adjusted DinD service utilization estimates cumulatively and for each demonstration year, for all measures and populations. We provide both the 95 and 90 percent confidence intervals for a clearer understanding of the estimate's precision.

Table E-1
Cumulative and annual demonstration impacts on service utilization and quality of care measures for eligible beneficiaries in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Adjusted DinD estimate	Relative difference (%)	p-value	95% confidence interval	90% confidence interval
Monthly probability of any inpatient admission (%)					
Cumulative	–0.56	–16.8	<0.0001	–0.72, –0.41	–0.70, –0.43
Demonstration year 1	–0.72	–17.5	<0.0001	–0.96, –0.49	–0.92, –0.53
Demonstration year 2	–0.58	–17.8	<0.0001	–0.81, –0.36	–0.77, –0.39
Demonstration year 3	–0.65	–20.8	<0.0001	–0.87, –0.44	–0.84, –0.47
Demonstration year 4	–0.51	–17.3	<0.0001	–0.75, –0.27	–0.71, –0.31
Demonstration year 5	–0.26	–9.6	0.0038	–0.43, –0.08	–0.40, –0.11
Number of all-cause 30-day readmissions per 1,000 discharges					
Cumulative	–25.09	–13.0	0.0447	–49.59, –0.60	–45.65, –4.54
Demonstration year 1	–13.21	NS	0.4380	–46.59, 20.17	–41.22, 14.81
Demonstration year 2	–32.73	NS	0.0506	–65.54, 0.08	–60.26, –5.19
Demonstration year 3	–15.34	NS	0.2173	–39.71, 9.03	–35.79, 5.11
Demonstration year 4	–35.26	–20.1	0.0242	–65.92, –4.59	–60.99, –9.52
Demonstration year 5	–35.55	NS	0.0766	–74.90, 3.80	–68.58, –2.53
Monthly probability of any ACSC admission, overall (%)					
Cumulative	–0.16	–21.2	0.0001	–0.25, –0.08	–0.23, –0.09
Demonstration year 1	–0.18	–19.3	0.0010	–0.29, –0.07	–0.27, –0.09
Demonstration year 2	–0.15	–19.9	0.0039	–0.26, –0.05	–0.24, –0.07
Demonstration year 3	–0.21	–27.7	0.0002	–0.32, –0.10	–0.31, –0.12
Demonstration year 4	–0.14	–21.5	0.0108	–0.25, –0.03	–0.23, –0.05
Demonstration year 5	–0.11	–19.5	0.0123	–0.19, –0.02	–0.18, –0.04

(continued)

Table E-1 (continued)
Cumulative and annual demonstration impacts on service utilization and quality of care measures for eligible beneficiaries in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Adjusted DinD estimate	Relative difference (%)	p-value	95% confidence interval	90% confidence interval
Monthly probability of any ACSC admission, chronic (%)					
Cumulative	–0.10	–21.6	0.0061	–0.17, –0.03	–0.16, –0.04
Demonstration year 1	–0.10	NS	0.0539	–0.20, 0.00	–0.18, –0.01
Demonstration year 2	–0.12	–23.1	0.0113	–0.21, –0.03	–0.19, –0.04
Demonstration year 3	–0.13	–29.1	0.0048	–0.23, –0.04	–0.21, –0.06
Demonstration year 4	–0.08	–20.7	0.0361	–0.16, –0.01	–0.15, –0.02
Demonstration year 5	–0.07	NS	0.0531	–0.14, 0.00	–0.13, –0.01
Monthly probability of any ED visit (%)					
Cumulative	–0.08	NS	0.5523	–0.35, 0.19	–0.31, 0.14
Demonstration year 1	–0.47	–7.3	0.0032	–0.78, –0.16	–0.73, –0.21
Demonstration year 2	–0.30	NS	0.1528	–0.70, 0.11	–0.64, 0.04
Demonstration year 3	–0.15	NS	0.3703	–0.47, 0.18	–0.42, 0.12
Demonstration year 4	0.27	NS	0.1269	–0.08, 0.62	–0.02, 0.56
Demonstration year 5	0.35	7.5	0.0434	0.01, 0.68	0.06, 0.63
Monthly number of preventable ED visits per 1,000 persons					
Cumulative	0.81	NS	0.4078	–1.10, 2.71	–0.80, 2.41
Demonstration year 1	–2.32	NS	0.0552	–4.70, 0.05	–4.32, –0.33
Demonstration year 2	–1.36	NS	0.3895	–4.46, 1.74	–3.96, 1.24
Demonstration year 3	0.09	NS	0.9422	–2.23, 2.41	–1.86, 2.03
Demonstration year 4	4.24	12.9	0.0012	1.68, 6.80	2.09, 6.39
Demonstration year 5	3.03	12.2	0.0092	0.75, 5.31	1.12, 4.95
Monthly probability of any SNF admission (%)					
Cumulative	–0.25	–21.6	<0.0001	–0.34, –0.16	–0.33, –0.17
Demonstration year 1	–0.36	–26.7	<0.0001	–0.46, –0.25	–0.45, –0.27
Demonstration year 2	–0.27	–25.5	<0.0001	–0.39, –0.14	–0.37, –0.16
Demonstration year 3	–0.19	–18.3	0.0017	–0.31, –0.07	–0.29, –0.09
Demonstration year 4	–0.11	NS	0.1092	–0.25, 0.02	–0.22, 0.00
Demonstration year 5	–0.26	–20.8	0.0014	–0.41, –0.10	–0.39, –0.12

(continued)

Table E-1 (continued)
Cumulative and annual demonstration impacts on service utilization and quality of care measures for eligible beneficiaries in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Adjusted DinD estimate	Relative difference (%)	p-value	95% confidence interval	90% confidence interval
Annual probability of any long-stay NF use (%)					
Cumulative	–1.46	–18.0	<0.0001	–2.18, –0.73	–2.06, –0.85
Demonstration year 1	–1.42	–18.1	0.0002	–2.17, –0.67	–2.05, –0.79
Demonstration year 2	–2.85	–41.1	<0.0001	–3.74, –1.96	–3.60, –2.10
Demonstration year 3	–0.57	NS	0.1982	–1.44, 0.30	–1.30, 0.16
Demonstration year 4	–1.16	–12.6	0.0219	–2.14, –0.17	–1.99, –0.33
Demonstration year 5	–1.43	–16.2	0.0052	–2.43, –0.43	–2.27, –0.59
Probability of 30-day follow-up after mental health discharge (%)					
Cumulative	4.77	NS	0.2549	–3.44, 12.98	–2.12, 11.66
Demonstration year 1	2.99	NS	0.6770	–11.08, 17.07	–8.82, 14.80
Demonstration year 2	6.83	NS	0.3009	–6.11, 19.76	–4.03, 17.68
Demonstration year 3	6.71	NS	0.1388	–2.18, 15.60	–0.75, 14.17
Demonstration year 4	1.55	NS	0.7793	–9.32, 12.43	–7.57, 10.68
Demonstration year 5	5.79	NS	0.2239	–3.54, 15.12	–2.04, 13.62
Monthly number of physician E&M visits per 1,000 persons					
Cumulative	–13.37	NS	0.3385	–40.74, 14.00	–36.34, 9.60
Demonstration year 1	–25.61	–2.9	0.0391	–49.93, –1.29	–46.02, –5.20
Demonstration year 2	–53.81	–6.2	0.0013	–86.64, –20.98	–81.37, –26.26
Demonstration year 3	–20.99	NS	0.2240	–54.83, 12.85	–49.39, 7.41
Demonstration year 4	2.35	NS	0.9145	–40.62, 45.33	–33.71, 38.42
Demonstration year 5	16.65	NS	0.4388	–25.50, 58.80	–18.73, 52.03

ACSC = ambulatory care sensitive condition; ED = emergency department; E&M = evaluation and management; NS = not statistically significant; SNF = skilled nursing facility.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data, and Minimum Data Set data.

Table E-2

Cumulative and annual demonstration impacts on service utilization and quality of care measures on beneficiaries with LTSS use versus those without LTSS use in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Demonstration year	Special population	Demonstration effect relative to the comparison group	Relative difference (%)	p-value	95% confidence interval	90% confidence interval	Difference in demonstration effect (LTSS versus non-LTSS)
Service Utilization Measures								
Monthly probability of any inpatient admission (%)	Cumulative	LTSS users	–1.58	–28.4	<0.0001	–2.31, –0.85	–2.19, –0.96	–1.26***
		Non-LTSS users	–0.32	–14.7	0.0009	–0.50, –0.13	–0.47, –0.16	
	Demonstration year 1	LTSS users	0.66	NS	0.2928	–0.57, 1.90	–0.37, 1.70	1.15
		Non-LTSS users	–0.48	–17.9	0.0002	–0.73, –0.23	–0.69, –0.27	
	Demonstration year 2	LTSS users	–1.90	–36.9	0.0004	–2.95, –0.84	–2.78, –1.01	–1.64**
		Non-LTSS users	–0.25	NS	0.0512	–0.51, 0.00	–0.46, –0.04	
	Demonstration year 3	LTSS users	–2.58	–51.8	<0.0001	–3.67, –1.49	–3.49, –1.67	–2.22***
		Non-LTSS users	–0.36	–18.1	0.0030	–0.59, –0.12	–0.55, –0.16	
	Demonstration year 4	LTSS users	–2.25	–53.0	<0.0001	–3.34, –1.16	–3.16, –1.33	–1.93***
		Non-LTSS users	–0.32	–16.2	0.0089	–0.55, –0.08	–0.52, –0.12	
	Demonstration year 5	LTSS users	–1.74	–43.1	0.0077	–3.02, –0.46	–2.81, –0.67	–1.58*
		Non-LTSS users	–0.16	NS	0.1205	–0.36, 0.04	–0.33, 0.01	
Monthly probability of any ED visit (%)	Cumulative	LTSS users	–0.56	NS	0.1717	–1.35, 0.24	–1.22, 0.11	–0.56
		Non-LTSS users	0.00	NS	0.9912	–0.31, 0.31	–0.26, 0.26	
	Demonstration year 1	LTSS users	–0.28	NS	0.6265	–1.43, 0.86	–1.24, 0.68	–0.07
		Non-LTSS users	–0.22	NS	0.1978	–0.55, 0.11	–0.50, 0.06	
	Demonstration year 2	LTSS users	–1.13	NS	0.1058	–2.49, 0.24	–2.27, 0.02	–0.98
		Non-LTSS users	–0.14	NS	0.5076	–0.57, 0.28	–0.50, 0.21	
	Demonstration year 3	LTSS users	0.07	NS	0.9082	–1.20, 1.35	–0.99, 1.14	0.23
		Non-LTSS users	–0.15	NS	0.4150	–0.53, 0.22	–0.47, 0.16	
	Demonstration year 4	LTSS users	–0.90	NS	0.1727	–2.20, 0.39	–1.99, 0.19	–1.13
		Non-LTSS users	0.23	NS	0.2750	–0.18, 0.63	–0.11, 0.56	
	Demonstration year 5	LTSS users	0.36	NS	0.5880	–0.93, 1.65	–0.73, 1.44	0.05
		Non-LTSS users	0.30	NS	0.0949	–0.05, 0.66	0.00, 0.60	

(continued)

Table E-2(continued)
Cumulative and annual demonstration impacts on service utilization and quality of care measures on beneficiaries with LTSS use versus those without LTSS use in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Demonstration year	Special population	Demonstration effect relative to the comparison group	Relative difference (%)	p-value	95% confidence interval	90% confidence interval	Difference in demonstration effect (LTSS versus non-LTSS)
Service Utilization Measures (continued)								
Monthly number of physician E&M visits per 1,000 persons	Cumulative	LTSS users	–67.46	NS	0.1604	–161.64, 26.73	–146.49, 11.58	–85.87
		Non-LTSS users	18.41	NS	0.1284	–5.33, 42.15	–1.51, 38.33	
	Demonstration year 1	LTSS users	75.19	NS	0.0956	–13.24, 163.63	0.98, 149.41	74.32
		Non-LTSS users	0.87	NS	0.9398	–21.83, 23.58	–18.18, 19.93	
	Demonstration year 2	LTSS users	–295.47	–26.0	<0.0001	–438.66, –152.28	–415.64, –175.30	–302.67***
		Non-LTSS users	7.20	NS	0.6461	–23.52, 37.92	–18.58, 32.98	
	Demonstration year 3	LTSS users	–176.36	–14.8	0.0071	–304.66, –48.06	–284.04, –68.69	–189.71**
		Non-LTSS users	13.35	NS	0.4257	–19.50, 46.20	–14.22, 40.91	
	Demonstration year 4	LTSS users	–199.94	–14.5	0.0153	–361.46, –38.43	–335.49, –64.39	–225.42**
		Non-LTSS users	25.48	NS	0.1387	–8.25, 59.21	–2.83, 53.79	
	Demonstration year 5	LTSS users	–104.56	NS	0.1502	–246.99, 37.88	–224.09, 14.98	–153.56*
		Non-LTSS users	49.01	7.9	0.0016	18.60, 79.42	23.48, 74.53	
Monthly probability of any SNF admission (%)	Cumulative	LTSS users	–0.43	NS	0.1304	–0.99, 0.13	–0.90, 0.04	–0.34
		Non-LTSS users	–0.09	–25.4	0.0014	–0.14, –0.03	–0.13, –0.04	
	Demonstration year 1	LTSS users	0.69	29.8	0.0499	0.00, 1.37	0.11, 1.26	0.86*
		Non-LTSS users	–0.18	–37.8	0.0002	–0.27, –0.08	–0.26, –0.10	
	Demonstration year 2	LTSS users	–1.14	–56.1	0.0109	–2.02, –0.26	–1.88, –0.40	–1.10*
		Non-LTSS users	–0.04	NS	0.1516	–0.10, 0.02	–0.10, 0.01	
	Demonstration year 3	LTSS users	–0.77	–39.0	0.0389	–1.49, –0.04	–1.38, –0.16	–0.69
		Non-LTSS users	–0.08	–24.8	0.0198	–0.14, –0.01	–0.13, –0.02	
	Demonstration year 4	LTSS users	–0.83	NS	0.1762	–2.04, 0.37	–1.85, 0.18	–0.79
		Non-LTSS users	–0.04	NS	0.1420	–0.10, 0.01	–0.09, 0.01	
	Demonstration year 5	LTSS users	–1.22	–43.9	0.0323	–2.33, –0.10	–2.15, –0.28	–1.17*
		Non-LTSS users	–0.04	NS	0.1630	–0.10, 0.02	–0.09, 0.01	

(continued)

Table E-2(continued)
Cumulative and annual demonstration impacts on service utilization and quality of care measures on beneficiaries with LTSS use versus those without LTSS use in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Demonstration year	Special population	Demonstration effect relative to the comparison group	Relative difference (%)	p-value	95% confidence interval	90% confidence interval	Difference in demonstration effect (LTSS versus non-LTSS)
Quality of Care Measures								
Monthly number of preventable ED visits per 1,000 persons	Cumulative	LTSS users	2.61	NS	0.5332	–5.60, 10.81	–4.28, 9.49	2.73
		Non-LTSS users	–0.12	NS	0.9200	–2.47, 2.23	–2.09, 1.85	
	Demonstration year 1	LTSS users	2.55	NS	0.6819	–9.65, 14.75	–7.69, 12.79	4.93
		Non-LTSS users	–2.38	NS	0.1329	–5.49, 0.72	–4.99, 0.23	
	Demonstration year 2	LTSS users	3.83	NS	0.6460	–12.52, 20.18	–9.89, 17.55	5.54
		Non-LTSS users	–1.71	NS	0.3069	–5.00, 1.57	–4.47, 1.04	
	Demonstration year 3	LTSS users	9.04	NS	0.1291	–2.63, 20.70	–0.76, 18.83	10.42
		Non-LTSS users	–1.38	NS	0.3621	–4.36, 1.59	–3.88, 1.11	
	Demonstration year 4	LTSS users	–0.51	NS	0.9389	–13.59, 12.57	–11.49, 10.46	–3.32
		Non-LTSS users	2.81	NS	0.0514	–0.02, 5.63	0.44, 5.18	
	Demonstration year 5	LTSS users	6.53	NS	0.2889	–5.54, 18.60	–3.60, 16.66	4.99
		Non-LTSS users	1.54	NS	0.2142	–0.89, 3.98	–0.50, 3.58	
Monthly probability of any ACSC admission, overall (%)	Cumulative	LTSS users	–0.28	NS	0.1039	–0.62, 0.06	–0.56, 0.00	–0.15
		Non-LTSS users	–0.13	–27.0	0.0014	–0.21, –0.05	–0.19, –0.06	
	Demonstration year 1	LTSS users	0.32	NS	0.2856	–0.26, 0.89	–0.17, 0.80	0.44
		Non-LTSS users	–0.12	–21.7	0.0188	–0.22, –0.02	–0.21, –0.04	
	Demonstration year 2	LTSS users	–0.51	–36.7	0.0460	–1.01, –0.01	–0.93, –0.09	–0.40
		Non-LTSS users	–0.11	–23.4	0.0287	–0.21, –0.01	–0.20, –0.03	
	Demonstration year 3	LTSS users	–0.51	–39.1	0.0153	–0.93, –0.10	–0.86, –0.16	–0.36
		Non-LTSS users	–0.15	–32.5	0.0092	–0.26, –0.04	–0.24, –0.05	
	Demonstration year 4	LTSS users	–0.26	NS	0.2407	–0.70, 0.18	–0.63, 0.11	–0.10
		Non-LTSS users	–0.16	–35.8	0.0030	–0.27, –0.06	–0.25, –0.07	
	Demonstration year 5	LTSS users	–0.47	–54.0	0.0375	–0.91, –0.03	–0.84, –0.10	–0.36
		Non-LTSS users	–0.11	–28.4	0.0051	–0.18, –0.03	–0.17, –0.04	

(continued)

Table E-2(continued)
Cumulative and annual demonstration impacts on service utilization and quality of care measures on beneficiaries with LTSS use versus those without LTSS use in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Demonstration year	Special population	Demonstration effect relative to the comparison group	Relative difference (%)	p-value	95% confidence interval	90% confidence interval	Difference in demonstration effect (LTSS versus non-LTSS)
Quality of Care Measures (continued)								
Monthly probability of any ACSC admission, chronic (%)	Cumulative	LTSS users	–0.04	NS	0.7500	–0.28, 0.20	–0.24, 0.16	0.06
		Non-LTSS users	–0.10	–32.2	0.0019	–0.17, –0.04	–0.16, –0.05	
	Demonstration year 1	LTSS users	0.19	NS	0.3850	–0.24, 0.62	–0.17, 0.55	0.26
		Non-LTSS users	–0.07	NS	0.0941	–0.15, 0.01	–0.14, –0.00	
	Demonstration year 2	LTSS users	–0.19	NS	0.3692	–0.60, 0.22	–0.53, 0.16	–0.07
		Non-LTSS users	–0.11	–32.3	0.0150	–0.21, –0.02	–0.19, –0.04	
	Demonstration year 3	LTSS users	–0.10	NS	0.5622	–0.42, 0.23	–0.36, 0.17	0.02
		Non-LTSS users	–0.12	–37.6	0.0124	–0.21, –0.02	–0.19, –0.04	
	Demonstration year 4	LTSS users	–0.02	NS	0.8825	–0.31, 0.27	–0.27, 0.22	0.11
		Non-LTSS users	–0.13	–41.0	0.0029	–0.21, –0.04	–0.20, –0.06	
	Demonstration year 5	LTSS users	–0.02	NS	0.8586	–0.27, 0.22	–0.23, 0.18	0.08
		Non-LTSS users	–0.11	–37.6	0.0037	–0.18, –0.03	–0.17, –0.05	
Probability of 30-day follow-up after mental health discharge (%)	Cumulative	LTSS users	—	—	—	—	—	—
		Non-LTSS users	—	—	—	—	—	
	Demonstration year 1	LTSS users	—	—	—	—	—	—
		Non-LTSS users	—	—	—	—	—	
	Demonstration year 2	LTSS users	—	—	—	—	—	—
		Non-LTSS users	—	—	—	—	—	
	Demonstration year 3	LTSS users	—	—	—	—	—	—
		Non-LTSS users	—	—	—	—	—	
	Demonstration year 4	LTSS users	—	—	—	—	—	—
		Non-LTSS users	—	—	—	—	—	
	Demonstration year 5	LTSS users	—	—	—	—	—	—
		Non-LTSS users	—	—	—	—	—	

(continued)

Table E-2 (continued)
Cumulative and annual demonstration impacts on service utilization and quality of care measures on beneficiaries with LTSS use versus those without LTSS use in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Demonstration year	Special population	Demonstration effect relative to the comparison group	Relative difference (%)	p-value	95% confidence interval	90% confidence interval	Difference in demonstration effect (LTSS versus non-LTSS)
Quality of Care Measures (continued)								
Number of all-cause 30-day readmissions per 1,000 discharges	Cumulative	LTSS users	–24.95	NS	0.3124	–73.35, 23.46	–65.57, 15.67	9.92
		Non-LTSS users	–34.87	–21.2	0.0174	–63.59, –6.14	–58.98, –10.76	
	Demonstration year 1	LTSS users	31.70	NS	0.3254	–31.49, 94.89	–21.33, 84.73	67.01
		Non-LTSS users	–35.31	NS	0.1992	–89.21, 18.60	–80.54, 9.93	
	Demonstration year 2	LTSS users	–73.67	NS	0.1100	–164.02, 16.69	–149.49, 2.16	–28.36
		Non-LTSS users	–45.31	–29.7	0.0074	–78.48, –12.14	–73.14, –17.47	
	Demonstration year 3	LTSS users	–56.22	NS	0.1948	–141.21, 28.77	–127.55, 15.10	–31.19
		Non-LTSS users	–25.03	NS	0.1496	–59.08, 9.02	–53.60, 3.54	
	Demonstration year 4	LTSS users	–63.76	NS	0.2364	–169.31, 41.79	–152.34, 24.82	–16.40
		Non-LTSS users	–47.36	–30.6	0.0073	–81.94, –12.78	–76.38, –18.34	
	Demonstration year 5	LTSS users	–87.56	NS	0.1337	–202.02, 26.89	–183.62, 8.49	–63.91
		Non-LTSS users	–23.65	NS	0.2922	–67.65, 20.36	–60.58, 13.28	

— = data not available. * p < 0.05; ** p < 0.01; *** p < 0.001
NOTE: Results for the probability of 30-day follow-up after mental health discharge are not reported due to small Ns in both the denominators and numerators of the measure for beneficiaries with LTSS use.
ACSC = ambulatory care sensitive condition; ED = emergency department; E&M = evaluation and management; LTSS = long-term services and supports; NS = not statistically significant; SNF = skilled nursing facility.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

Table E-3

Cumulative and annual demonstration impacts on service utilization and quality of care measures on beneficiaries with SPMI versus those without SPMI in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Demonstration year	Special population	Demonstration effect relative to the comparison group	Relative difference (%)	p-value	95% confidence interval	90% confidence interval	Difference in demonstration effect (SPMI versus non-SPMI)
Service Utilization Measures								
Monthly probability of any inpatient admission (%)	Cumulative	SPMI	–0.85	–15.7	<0.0001	–1.24, –0.46	–1.18, –0.52	–0.51*
		Non-SPMI	–0.34	–14.3	0.0001	–0.51, –0.16	–0.48, –0.19	
	Demonstration year 1	SPMI	–0.74	–11.7	0.0034	–1.23, –0.24	–1.15, –0.32	–0.15
		Non-SPMI	–0.59	–19.3	<0.0001	–0.88, –0.29	–0.84, –0.34	
	Demonstration year 2	SPMI	–0.88	–16.1	0.0034	–1.47, –0.29	–1.38, –0.39	–0.55
		Non-SPMI	–0.33	–14.3	0.0074	–0.57, –0.09	–0.53, –0.13	
	Demonstration year 3	SPMI	–1.28	–24.0	0.0002	–1.94, –0.61	–1.83, –0.72	–0.99**
		Non-SPMI	–0.29	–13.7	0.0039	–0.49, –0.09	–0.45, –0.12	
	Demonstration year 4	SPMI	–1.01	–21.0	0.0007	–1.60, –0.43	–1.50, –0.52	–0.78*
		Non-SPMI	–0.23	NS	0.0547	–0.46, 0.00	–0.43, –0.03	
	Demonstration year 5	SPMI	–0.57	–12.6	0.0189	–1.05, –0.09	–0.98, –0.17	–0.52*
		Non-SPMI	–0.05	NS	0.4948	–0.21, 0.10	–0.18, 0.08	
Monthly probability of any ED visit (%)	Cumulative	SPMI	0.60	7.1	0.0380	0.03, 1.17	0.12, 1.08	0.83*
		Non-SPMI	–0.23	NS	0.1909	–0.58, 0.12	–0.53, 0.06	
	Demonstration year 1	SPMI	0.30	NS	0.3800	–0.37, 0.98	–0.27, 0.87	0.91*
		Non-SPMI	–0.60	–11.9	0.0023	–0.99, –0.22	–0.93, –0.28	
	Demonstration year 2	SPMI	0.67	NS	0.1268	–0.19, 1.53	–0.05, 1.39	1.19*
		Non-SPMI	–0.52	–10.5	0.0477	–1.04, –0.01	–0.96, –0.09	
	Demonstration year 3	SPMI	0.30	NS	0.4157	–0.42, 1.02	–0.31, 0.91	0.49
		Non-SPMI	–0.19	NS	0.3530	–0.59, 0.21	–0.53, 0.15	
	Demonstration year 4	SPMI	1.05	13.3	0.0084	0.27, 1.83	0.40, 1.71	1.04*
		Non-SPMI	0.01	NS	0.9673	–0.42, 0.43	–0.35, 0.37	
	Demonstration year 5	SPMI	0.75	11.0	0.0396	0.04, 1.46	0.15, 1.35	0.47
		Non-SPMI	0.28	NS	0.1042	–0.06, 0.61	–0.00, 0.56	

(continued)

Table E-3 (continued)
Cumulative and annual demonstration impacts on service utilization and quality of care measures on beneficiaries with SPMI versus those without SPMI in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Demonstration year	Special population	Demonstration effect relative to the comparison group	Relative difference (%)	p-value	95% confidence interval	90% confidence interval	Difference in demonstration effect (SPMI versus non-SPMI)
Service Utilization Measures (continued)								
Monthly number of physician E&M visits per 1,000 persons	Cumulative	SPMI	–45.52	NS	0.1453	–106.79, 15.74	–96.94, 5.89	–75.07*
		Non-SPMI	29.54	4.5	0.0101	7.03, 52.06	10.65, 48.44	
	Demonstration year 1	SPMI	–20.66	NS	0.3780	–66.60, 25.28	–59.22, 17.89	–18.06
		Non-SPMI	–2.60	NS	0.8556	–30.66, 25.45	–26.15, 20.94	
	Demonstration year 2	SPMI	–131.92	–10.0	0.0007	–208.15, –55.69	–195.90, –67.95	–128.52**
		Non-SPMI	–3.40	NS	0.8434	–37.19, 30.38	–31.76, 24.95	
	Demonstration year 3	SPMI	–80.48	–6.0	0.0460	–159.53, –1.42	–146.82, –14.13	–111.11*
		Non-SPMI	30.63	NS	0.0629	–1.65, 62.91	3.54, 57.72	
	Demonstration year 4	SPMI	–60.73	NS	0.1794	–149.39, 27.92	–135.13, 13.67	–121.26**
		Non-SPMI	60.53	9.2	0.0002	28.40, 92.65	33.57, 87.49	
	Demonstration year 5	SPMI	–64.45	NS	0.1941	–161.74, 32.84	–146.10, 17.20	–148.66**
		Non-SPMI	84.21	15.0	<0.0001	52.95, 115.47	57.97, 110.45	
Monthly probability of any SNF admission (%)	Cumulative	SPMI	–0.39	–18.0	0.0024	–0.64, –0.14	–0.60, –0.18	–0.25
		Non-SPMI	–0.14	–20.9	0.0006	–0.22, –0.06	–0.21, –0.07	
	Demonstration year 1	SPMI	–0.43	–19.0	0.0017	–0.71, –0.16	–0.66, –0.21	–0.17
		Non-SPMI	–0.26	–30.3	<0.0001	–0.38, –0.14	–0.36, –0.16	
	Demonstration year 2	SPMI	–0.50	–24.1	0.0016	–0.82, –0.19	–0.77, –0.24	–0.39*
		Non-SPMI	–0.12	NS	0.0597	–0.24, 0.00	–0.22, –0.01	
	Demonstration year 3	SPMI	–0.39	–19.5	0.0343	–0.75, –0.03	–0.69, –0.09	–0.33
		Non-SPMI	–0.06	NS	0.2732	–0.16, 0.05	–0.14, 0.03	
	Demonstration year 4	SPMI	–0.04	NS	0.8097	–0.35, 0.28	–0.30, 0.22	0.07
		Non-SPMI	–0.11	NS	0.1093	–0.25, 0.03	–0.23, 0.00	
	Demonstration year 5	SPMI	–0.65	–25.0	0.0034	–1.08, –0.21	–1.01, –0.28	–0.60**
		Non-SPMI	–0.05	NS	0.2967	–0.14, 0.04	–0.13, 0.03	

(continued)

Table E-3 (continued)
Cumulative and annual demonstration impacts on service utilization and quality of care measures on beneficiaries with SPMI versus those without SPMI in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Demonstration year	Special population	Demonstration effect relative to the comparison group	Relative difference (%)	p-value	95% confidence interval	90% confidence interval	Difference in demonstration effect (SPMI versus non-SPMI)
Quality of Care Measures								
Monthly number of preventable ED visits per 1,000 persons	Cumulative	SPMI	5.06	10.2	0.0332	0.40, 9.72	1.15, 8.98	5.09
		Non-SPMI	–0.03	NS	0.9825	–2.53, 2.47	–2.13, 2.07	
	Demonstration year 1	SPMI	1.91	NS	0.5192	–3.89, 7.70	–2.96, 6.77	4.53
		Non-SPMI	–2.62	NS	0.0713	–5.48, 0.23	–5.02, –0.23	
	Demonstration year 2	SPMI	4.25	NS	0.2511	–3.01, 11.51	–1.84, 10.35	6.68
		Non-SPMI	–2.43	NS	0.2374	–6.46, 1.60	–5.81, 0.95	
	Demonstration year 3	SPMI	3.12	NS	0.3409	–3.30, 9.53	–2.27, 8.50	3.31
		Non-SPMI	–0.20	NS	0.8942	–3.08, 2.69	–2.62, 2.22	
	Demonstration year 4	SPMI	10.47	23.5	0.0003	4.82, 16.11	5.73, 15.20	8.28*
		Non-SPMI	2.19	NS	0.1932	–1.11, 5.49	–0.58, 4.96	
	Demonstration year 5	SPMI	5.30	NS	0.0510	–0.02, 10.62	0.83, 9.76	2.70
		Non-SPMI	2.59	13.7	0.0207	0.40, 4.79	0.75, 4.44	
Monthly probability of any ACSC admission, overall (%)	Cumulative	SPMI	–0.24	–19.3	0.0080	–0.42, –0.06	–0.39, –0.09	–0.13
		Non-SPMI	–0.11	–20.0	0.0246	–0.20, –0.01	–0.19, –0.03	
	Demonstration year 1	SPMI	–0.22	–15.3	0.0289	–0.43, –0.02	–0.39, –0.06	–0.09
		Non-SPMI	–0.14	NS	0.0723	–0.28, 0.01	–0.26, –0.01	
	Demonstration year 2	SPMI	–0.15	NS	0.2191	–0.38, 0.09	–0.35, 0.05	–0.02
		Non-SPMI	–0.13	–22.0	0.0296	–0.24, –0.01	–0.22, –0.03	
	Demonstration year 3	SPMI	–0.30	NS	0.0607	–0.60, 0.01	–0.55, –0.04	–0.15
		Non-SPMI	–0.15	–28.4	0.0031	–0.25, –0.05	–0.23, –0.07	
	Demonstration year 4	SPMI	–0.28	NS	0.0702	–0.59, 0.02	–0.54, –0.03	–0.21
		Non-SPMI	–0.07	NS	0.2240	–0.18, 0.04	–0.16, 0.02	
	Demonstration year 5	SPMI	–0.26	–27.2	0.0171	–0.47, –0.05	–0.44, –0.08	–0.22
		Non-SPMI	–0.04	NS	0.3683	–0.11, 0.04	–0.10, 0.03	

(continued)

Table E-3 (continued)
Cumulative and annual demonstration impacts on service utilization and quality of care measures on beneficiaries with SPMI versus those without SPMI in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Measure	Demonstration year	Special population	Demonstration effect relative to the comparison group	Relative difference (%)	p-value	95% confidence interval	90% confidence interval	Difference in demonstration effect (SPMI versus non-SPMI)
Quality of Care Measures (continued)								
Monthly probability of any ACSC admission, chronic (%)	Cumulative	SPMI	–0.16	–23.3	0.0451	–0.32, –0.00	–0.30, –0.03	–0.10
		Non-SPMI	–0.07	NS	0.0619	–0.13, 0.00	–0.12, –0.01	
	Demonstration year 1	SPMI	–0.14	NS	0.1030	–0.31, 0.03	–0.28, 0.00	–0.07
		Non-SPMI	–0.07	NS	0.2567	–0.19, 0.05	–0.17, 0.03	
	Demonstration year 2	SPMI	–0.14	NS	0.2303	–0.37, 0.09	–0.33, 0.05	–0.05
		Non-SPMI	–0.09	–23.6	0.0321	–0.18, –0.01	–0.16, –0.02	
	Demonstration year 3	SPMI	–0.13	NS	0.3036	–0.37, 0.12	–0.33, 0.08	–0.00
		Non-SPMI	–0.13	–34.7	0.0021	–0.21, –0.05	–0.19, –0.06	
	Demonstration year 4	SPMI	–0.23	–35.4	0.0456	–0.46, –0.00	–0.42, –0.04	–0.21
		Non-SPMI	–0.02	NS	0.5852	–0.09, 0.05	–0.08, 0.04	
	Demonstration year 5	SPMI	–0.21	–35.6	0.0456	–0.41, –0.00	–0.38, –0.04	–0.19
		Non-SPMI	–0.01	NS	0.6600	–0.07, 0.05	–0.06, 0.04	
Number of all-cause 30-day readmissions per 1,000 discharges	Cumulative	SPMI	–2.06	NS	0.8958	–32.87, 28.75	–27.91, 23.80	39.33
		Non-SPMI	–41.39	–24.4	0.0158	–75.00, –7.78	–69.60, –13.19	
	Demonstration year 1	SPMI	12.08	NS	0.6205	–35.74, 59.90	–28.05, 52.22	43.95
		Non-SPMI	–31.87	NS	0.2182	–82.60, 18.86	–74.44, 10.71	
	Demonstration year 2	SPMI	–7.49	NS	0.7204	–48.52, 33.54	–41.93, 26.94	43.63
		Non-SPMI	–51.12	–32.1	0.0170	–93.10, –9.15	–86.35, –15.90	
	Demonstration year 3	SPMI	0.63	NS	0.9751	–38.87, 40.13	–32.52, 33.78	24.59
		Non-SPMI	–23.96	NS	0.2107	–61.49, 13.56	–55.46, 7.53	
	Demonstration year 4	SPMI	–7.34	NS	0.7760	–57.86, 43.18	–49.73, 35.06	49.95
		Non-SPMI	–57.28	–36.4	0.0030	–95.18, –19.39	–89.09, –25.48	
	Demonstration year 5	SPMI	–17.56	NS	0.5267	–71.94, 36.81	–63.19, 28.07	29.46
		Non-SPMI	–47.02	NS	0.0556	–95.16, 1.12	–87.42, –6.62	

(continued)

Table E-3 (continued)
Cumulative and annual demonstration impacts on service utilization and quality of care measures on beneficiaries with SPMI versus those without SPMI in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$
ACSC = ambulatory care sensitive condition; ED = emergency department; E&M = evaluation and management; NS = not statistically significant; SNF = skilled nursing facility; SPMI = serious and persistent mental illness.
SOURCE: RTI International analysis of Medicare fee-for-service claims and encounter data.

Table E-4 presents results on the average percentage of demonstration eligible beneficiaries using selected Medicare service types during the months in which they met demonstration eligibility criteria in the predemonstration and demonstration periods. In addition, average counts of service use are presented across all such eligible months, and for the subset of these months in which eligible beneficiaries were users of each respective service type.

Data are shown for the predemonstration and demonstration period for both South Carolina eligible beneficiaries (i.e., the demonstration group) and the comparison group. We also provide tables for the RTI quality of care and care coordination measures (***Table E-5***) and NF-related measures derived from the MDS (***Table E-6***). These descriptive results reflect the underlying experience of the two groups; changes over time are not intended to be interpreted as caused by the demonstration.

The demonstration and comparison groups were similar across many of the service utilization measures in each of the predemonstration (baseline) years and the demonstration years (***Table E-4***). However, there were a few outcomes where some differences were apparent. For example, outpatient therapy use was higher among the comparison group than among the demonstration group, while independent therapy use was higher among the demonstration group than among the comparison group.

As with the service utilization measures, the South Carolina demonstration eligible beneficiaries were similar to the comparison group in many, but not all, of the RTI quality of care and care coordination measures (***Table E-5***). In general, the demonstration group had fewer preventable ED visits, ACSC admissions, and pneumococcal vaccinations than the comparison group across most years. Screening for clinical depression was higher among the demonstration group during the demonstration period than among the comparison group. No clear pattern was evident for the rate of 30-day all-cause readmissions or the rate of 30-day follow-up visits after mental health discharges.

Finally, across all years, the demonstration eligible group had a lower rates of new long-stay NF admissions and a lower percentage of long-stay NF users relative to the comparison group (***Table E-6***). There were differences in some characteristics of long-stay NF residents at admission: relative to the comparison group, demonstration eligible beneficiaries generally had worse functional status and higher proportions of beneficiaries with severe cognitive impairment.

Table E-4
Proportion and utilization for institutional and non-institutional services for the demonstration and comparison groups in South Carolina, February 1, 2013–December 31, 2020

Measures by setting	Group	Predemonstration year 1	Predemonstration year 2	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
Number of demonstration eligible beneficiaries		12,134	11,665	12,411	10,258	11,216	12,646	15,035
Number of comparison eligible beneficiaries		22,899	23,048	25,117	21,658	21,057	20,656	20,542
Institutional setting								
Inpatient admissions[1]	Demonstration							
% with use		4.2	4.2	3.1	2.5	2.3	2.3	2.3
Utilization per 1,000 user months		1,138.1	1,145.1	1,141.6	1,126.9	1,126.6	1,112.6	1,112.6
Utilization per 1,000 eligible months		48.3	48.3	35.2	28.5	26.0	25.8	25.7
Inpatient admissions[1]	Comparison							
% with use		4.3	4.5	4.1	3.3	3.1	2.9	2.7
Utilization per 1,000 user months		1,121.1	1,147.4	1,138.6	1,134.0	1,120.1	1,124.5	1,110.9
Utilization per 1,000 eligible months		47.9	51.6	47.0	37.0	35.1	33.2	29.9
Inpatient psychiatric	Demonstration							
% with use		0.1	0.1	0.1	0.0	0.0	0.0	0.1
Utilization per 1,000 user months		1,037.5	1,079.4	1,066.7	1,083.3	1,000.0	1,018.5	1,060.2
Utilization per 1,000 eligible months		0.7	0.6	0.6	0.5	0.5	0.4	0.6
Inpatient psychiatric	Comparison							
% with use		0.1	0.1	0.1	0.1	0.1	0.1	0.1
Utilization per 1,000 user months		1,077.9	1,064.1	1,037.6	1,020.4	1,038.6	1,140.1	1,059.7
Utilization per 1,000 eligible months		0.7	0.7	0.6	0.7	0.6	1.0	0.6

(continued)

Table E-4 (continued)
Proportion and utilization for institutional and non-institutional services for the demonstration and comparison groups in South Carolina, February 1, 2013–December 31, 2020

Measures by setting	Group	Predemonstration year 1	Predemonstration year 2	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
Inpatient non-psychiatric	Demonstration							
% with use		4.2	4.2	3.0	2.5	2.3	2.3	2.3
Utilization per 1,000 user months		1,136.6	1,144.6	1,140.4	1,125.3	1,127.1	1,111.1	1,111.1
Utilization per 1,000 eligible months		47.7	47.7	34.6	28.0	25.5	25.4	25.1
Inpatient non-psychiatric	Comparison							
% with use		4.2	4.4	4.1	3.2	3.1	2.9	2.6
Utilization per 1,000 user months		1,118.6	1,145.3	1,138.1	1,132.8	1,117.7	1,119.8	1,107.5
Utilization per 1,000 eligible months		47.1	50.9	46.4	36.3	34.4	32.1	29.2
Emergency department use (non-admit)	Demonstration							
% with use		5.5	5.5	5.0	5.1	5.2	5.4	4.4
Utilization per 1,000 user months		1,188.6	1,170.3	1,203.8	1,210.3	1,217.6	1,220.8	1,236.1
Utilization per 1,000 eligible months		65.4	64.4	60.6	61.7	63.0	65.6	54.0
Emergency department use (non-admit)	Comparison							
% with use		6.2	6.3	6.4	6.2	6.1	5.8	4.6
Utilization per 1,000 user months		1,190.5	1,179.6	1,213.4	1,236.9	1,212.5	1,194.4	1,188.4
Utilization per 1,000 eligible months		73.7	73.9	77.8	76.2	73.9	69.2	55.1

(continued)

Table E-4 (continued)
Proportion and utilization for institutional and non-institutional services for the demonstration and comparison groups in South Carolina, February 1, 2013–December 31, 2020

Measures by setting	Group	Predemonstration year 1	Predemonstration year 2	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
Emergency department use (psychiatric)	Demonstration							
% with use		0.2	0.1	0.1	0.2	0.2	0.2	0.2
Utilization per 1,000 user months		1,080.0	1,047.3	1,100.7	1,078.3	1,177.1	1,130.2	1,088.6
Utilization per 1,000 eligible months		1.7	1.5	1.6	1.7	2.0	1.8	1.7
Emergency department use (psychiatric)	Comparison							
% with use		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Utilization per 1,000 user months		1,063.3	1,132.9	1,068.2	1,039.7	1,065.5	1,051.2	1,041.8
Utilization per 1,000 eligible months		1.8	2.4	2.3	2.1	2.1	1.8	1.6
Observation stays	Demonstration							
% with use		0.7	0.7	0.7	0.6	0.7	0.8	0.7
Utilization per 1,000 user months		1,024.8	1,013.4	1,048.9	1,036.6	1,049.5	1,051.9	1,075.7
Utilization per 1,000 eligible months		7.5	7.0	6.8	6.5	7.7	8.5	7.5
Observation stays	Comparison							
% with use		0.8	0.8	0.8	0.7	0.7	0.6	0.5
Utilization per 1,000 user months		1,034.6	1,028.0	1,042.7	1,031.8	1,021.1	1,020.0	1,022.7
Utilization per 1,000 eligible months		8.1	8.1	8.4	7.4	7.4	6.2	5.1

(continued)

Table E-4 (continued)
Proportion and utilization for institutional and non-institutional services for the demonstration and comparison groups in South Carolina, February 1, 2013–December 31, 2020

Measures by setting	Group	Predemonstration year 1	Predemonstration year 2	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
Skilled nursing facility	Demonstration							
% with use		0.9	1.1	0.7	0.6	0.7	0.7	0.8
Utilization per 1,000 user months		1,074.0	1,072.0	1,077.8	1,078.3	1,074.9	1,060.5	1,052.5
Utilization per 1,000 eligible months		10.0	12.2	8.1	6.7	7.3	7.9	8.6
Skilled nursing facility	Comparison							
% with use		1.1	1.3	1.3	1.0	1.0	1.0	1.2
Utilization per 1,000 user months		1,088.2	1,080.3	1,086.6	1,085.2	1,065.4	1,059.1	1,062.1
Utilization per 1,000 eligible months		11.8	13.7	14.6	11.4	11.0	10.5	13.0
Hospice	Demonstration							
% with use		1.3	2.5	1.2	0.4	0.5	0.7	0.7
Utilization per 1,000 user months		1,022.8	1,025.7	1,030.5	1,028.4	1,015.4	1,013.4	1,016.1
Utilization per 1,000 eligible months		13.5	25.3	12.7	4.5	5.1	7.4	7.3
Hospice	Comparison							
% with use		0.9	1.6	1.7	1.2	1.3	1.3	1.3
Utilization per 1,000 user months		1,017.0	1,015.4	1,012.9	1,018.5	1,012.1	1,012.8	1,007.9
Utilization per 1,000 eligible months		9.1	16.6	16.7	12.6	12.8	13.5	13.3

(continued)

Table E-4 (continued)
Proportion and utilization for institutional and non-institutional services for the demonstration and comparison groups in South Carolina, February 1, 2013–December 31, 2020

Measures by setting	Group	Predemonstration year 1	Predemonstration year 2	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
Non-institutional setting								
Primary care E&M visits	Demonstration							
% with use		46.8	47.1	46.1	45.2	46.2	47.5	43.2
Utilization per 1,000 user months		1,625.5	1,659.8	1,682.0	1,662.0	1,693.2	1,781.0	1,806.9
Utilization per 1,000 eligible months		760.3	782.2	776.1	752.0	781.7	846.7	781.5
Primary care E&M visits	Comparison							
% with use		48.3	49.1	49.7	48.8	48.4	49.1	43.8
Utilization per 1,000 user months		1,668.8	1,738.0	1,767.7	1,784.7	1,802.8	1,864.8	1,916.0
Utilization per 1,000 eligible months		805.8	853.2	878.3	870.6	871.9	915.4	839.1
Outpatient therapy (PT, OT, ST)	Demonstration							
% with use		1.4	1.9	1.6	1.2	1.7	2.2	1.9
Utilization per 1,000 user months		16,717.3	20,095.1	16,586.7	12,755.7	14,685.8	14,191.6	16,461.0
Utilization per 1,000 eligible months		234.7	389.5	261.8	149.5	254.5	318.4	310.4
Outpatient therapy (PT, OT, ST)	Comparison							
% with use		1.6	2.2	2.8	3.1	3.5	3.9	3.9
Utilization per 1,000 user months		22,866.2	24,169.1	25,782.7	25,318.2	24,620.1	23,755.3	25,376.4
Utilization per 1,000 eligible months		355.6	533.8	721.3	781.6	849.7	937.8	991.5

(continued)

Table E-4 (continued)
Proportion and utilization for institutional and non-institutional services for the demonstration and comparison groups in South Carolina, February 1, 2013–December 31, 2020

Measures by setting	Group	Predemonstration year 1	Predemonstration year 2	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
Independent therapy (PT, OT, ST)	Demonstration							
% with use		0.5	0.5	0.6	0.7	0.9	1.0	0.7
Utilization per 1,000 user months		13,186.0	14,430.4	13,932.8	14,177.1	13,298.0	12,437.8	12,785.0
Utilization per 1,000 eligible months		68.3	67.4	84.6	97.3	117.9	118.5	91.7
Independent therapy (PT, OT, ST)	Comparison							
% with use		0.6	0.5	0.7	0.7	0.7	0.7	0.6
Utilization per 1,000 user months		11,119.6	11,456.1	12,077.4	10,813.7	11,272.1	9,614.7	9,772.8
Utilization per 1,000 eligible months		63.0	58.8	84.2	71.9	80.9	70.5	55.7
Other hospital outpatient services	Demonstration							
% with use		25.4	25.5	23.9	23.3	25.0	26.1	23.7
Utilization per 1,000 user months		—	—	—	—	—	—	—
Utilization per 1,000 eligible months		—	—	—	—	—	—	—
Other hospital outpatient services	Comparison							
% with use		23.5	23.9	24.0	24.6	24.1	23.4	21.3
Utilization per 1,000 user months		—	—	—	—	—	—	—
Utilization per 1,000 eligible months		—	—	—	—	—	—	—

— = data not available. E&M = evaluation and management; OT = occupational therapy, PT = physical therapy, ST = speech therapy.
[1] Includes acute admissions, inpatient rehabilitation, and long-term care hospital admissions.
SOURCE: RTI International analysis of Medicare data.

Table E-5
Quality of care and care coordination outcomes for the demonstration and comparison groups in South Carolina, February 1, 2013–December 31, 2020

Quality and care coordination measures	Group	Predemonstration year 1	Predemonstration year 2	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
30-day all-cause risk-standardized readmission rate (%)	Demonstration	20.9	23.7	21.0	18.1	19.3	17.4	17.4
	Comparison	19.7	21.6	20.6	19.4	18.5	19.0	19.3
Preventable ED visits per 1,000 persons	Demonstration	31.4	30.6	29.9	30.4	30.5	32.8	24.4
	Comparison	36.2	35.4	36.9	36.7	35.2	32.9	24.4
Rate of 30-day follow-up after hospitalization for mental illness (%)	Demonstration	29.3	27.5	26.6	27.7	25.7	25.2	27.6
	Comparison	37.5	30.2	27.6	25.6	23.0	29.4	27.4
Ambulatory care sensitive condition admissions per 1,000 eligible months—overall composite (AHRQ PQI # 90)	Demonstration	11.3	10.0	7.3	6.3	5.5	5.2	4.4
	Comparison	10.9	10.6	9.8	8.0	7.9	6.8	5.8
Ambulatory care sensitive condition admissions per 1,000 eligible months—chronic composite (AHRQ PQI # 92)	Demonstration	6.4	5.9	4.2	4.0	3.4	3.3	2.9
	Comparison	6.2	6.2	5.5	5.3	4.8	4.2	3.7
Screening for clinical depression per 1,000 eligible months	Demonstration	0.3	0.6	1.9	2.8	4.3	5.0	6.4
	Comparison	0.2	0.8	1.2	2.1	1.8	2.2	5.0
Pneumococcal vaccinations for eligible beneficiaries 65 and older per 1,000 eligible months	Demonstration	2.8	4.5	6.8	6.7	2.6	2.1	1.9
	Comparison	10.7	10.8	11.0	7.0	9.5	7.9	9.2

AHRQ PQI = Agency for Healthcare Research and Quality Prevention Quality Indicator; ED = emergency department.
SOURCE: RTI International analysis of Medicare FFS claims and encounter data.

Table E-6
MDS long-stay NF utilization and characteristics at admission for the demonstration and comparison groups in South Carolina, February 1, 2013–December 31, 2020

Measures by setting	Group	Predemonstration year 1	Predemonstration year 2	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
Annual NF utilization								
Number of demonstration beneficiaries	Demonstration	10,682	9,954	8,426	8,749	9,543	10,714	12,704
New long-stay NF admissions per 1,000 eligible beneficiaries		16.3	23.8	25.3	11.9	11.5	12.1	9.1
Number of comparison beneficiaries	Comparison	20,140	19,579	16,610	17,617	17,215	16,911	16,686
New long-stay NF admissions per 1,000 eligible beneficiaries		20.0	23.2	39.7	21.7	19.8	22.1	14.7
Number of demonstration beneficiaries	Demonstration	10,730	10,189	8,495	8,785	9,755	11,183	13,137
Long-stay NF users as % of eligible beneficiaries		1.7	4.2	2.8	1.3	3.2	5.4	4.2
Number of comparison beneficiaries	Comparison	20,294	20,140	17,299	18,591	18,363	18,291	17,993
Long-stay NF users as % of eligible beneficiaries		2.3	4.7	7.5	7.0	8.0	9.4	8.9
Characteristics of new long-stay NF residents at admission								
Number of admitted demonstration beneficiaries	Demonstration	174	237	213.3	103.8	109.4	129.9	115.3
Number of admitted comparison beneficiaries	Comparison	403	454	660	383	341.6	373.5	245.7
Functional status (RUG-IV ADL scale)	Demonstration	8.4	8.4	7.8	8.0	7.6	7.5	7.2
Functional status (RUG-IV ADL scale)	Comparison	8.8	8.7	8.6	8.8	8.2	8.2	7.9
Percent with severe cognitive impairment	Demonstration	55.0	51.5	42.5	44.7	48.3	45.0	38.9
Percent with severe cognitive impairment	Comparison	43.7	43.0	42.5	46.9	40.4	39.0	45.2
Percent with low level of care need	Demonstration	1.2	1.6	1.7	0.4	2.6	0.2	3.2
Percent with low level of care need	Comparison	1.2	4.1	1.8	1.7	0.6	0.2	1.2

ADL = activities of daily living; MDS = Nursing Home Minimum Data Set; NF = nursing facility; RUG = Resource Utilization Group.
NOTE: A higher score on the RUG-IV ADL scale indicates greater impairment, or worse functional status.
SOURCE: RTI International analysis of Nursing Home Minimum Data Set data.

Tables E-7 and ***E-8*** present descriptive statistics for the demonstration enrollees, compared to those demonstration eligible beneficiaries who were eligible but not enrolled (non-enrollees), for each service by demonstration year, to help understand the utilization experience over time.

Non-enrollees generally had higher utilization than the demonstration enrollees across most service settings (***Table E-7***). For the quality of care and care coordination measures, non-enrollees generally had a higher rates of 30-day all-cause readmissions and overall and chronic ACSC admissions, as well as a greater number of preventable ED visits and pneumococcal vaccinations than demonstration enrollees (***Table E-8***).

Table E-7
Proportion and utilization of institutional and non-institutional services for demonstration enrollees and non-enrollees in South Carolina, February 1, 2015–December 31, 2020

Measures by setting	Group	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
Number of demonstration enrollees		4,660	5,752	6,337	6,996	8,887
Number of demonstration non-enrollees		7,747	4,506	4,878	5,649	6,145
Institutional setting						
Inpatient admissions[1]	Enrollees					
% with use		2.4	2.0	1.7	1.8	1.9
Utilization per 1,000 user months		1,123.3	1,083.5	1,082.9	1,083.9	1,089.7
Utilization per 1,000 eligible months		27.5	22.0	18.5	19.7	20.8
Inpatient admissions[1]	Non-enrollees					
% with use		3.7	3.2	3.1	3.0	2.9
Utilization per 1,000 user months		1,149.8	1,161.0	1,155.8	1,136.4	1,136.0
Utilization per 1,000 eligible months		43.0	36.7	35.3	33.7	32.8
Inpatient psychiatric	Enrollees					
% with use		0.1	0.0	0.0	0.0	0.0
Utilization per 1,000 user months		1,222.2	1,000.0	1,000.0	1,000.0	1,000.0
Utilization per 1,000 eligible months		0.8	0.3	0.3	0.2	0.4
Inpatient psychiatric	Non-enrollees					
% with use		0.0	0.1	0.1	0.1	0.1
Utilization per 1,000 user months		1,060.0	1,153.8	1,000.0	1,034.5	1,051.3
Utilization per 1,000 eligible months		0.5	0.7	0.6	0.6	0.7
Inpatient non-psychiatric	Enrollees					
% with use		2.4	2.0	1.7	1.8	1.9
Utilization per 1,000 user months		1,121.0	1,081.3	1,080.3	1,084.3	1,089.0
Utilization per 1,000 eligible months		26.6	21.7	18.1	19.4	20.4
Inpatient non-psychiatric	Non-enrollees					
% with use		3.7	3.1	3.0	2.9	2.8
Utilization per 1,000 user months		1,148.5	1,158.7	1,157.8	1,133.9	1,134.7
Utilization per 1,000 eligible months		42.5	35.9	34.6	33.1	32.1

(continued)

Table E-7 (continued)
Proportion and utilization of institutional and non-institutional services for demonstration enrollees and non-enrollees in South Carolina, February 1, 2015–December 31, 2020

Measures by setting	Group	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
Emergency department use (non-admit)	Enrollees					
% with use		4.6	4.7	4.7	5.1	4.2
Utilization per 1,000 user months		1,212.7	1,175.5	1,245.1	1,233.5	1,272.0
Utilization per 1,000 eligible months		56.4	54.7	58.8	63.4	54.1
Emergency department use (non-admit)	Non-enrollees					
% with use		5.3	5.5	5.6	5.7	4.6
Utilization per 1,000 user months		1,210.5	1,250.6	1,188.3	1,212.9	1,187.9
Utilization per 1,000 eligible months		64.0	68.7	67.0	69.3	54.2
Emergency department use (psychiatric)	Enrollees					
% with use		0.1	0.1	0.1	0.2	0.1
Utilization per 1,000 user months		1,024.4	1,130.4	1,228.3	1,177.0	1,097.7
Utilization per 1,000 eligible months		1.5	1.7	1.8	1.8	1.6
Emergency department use (psychiatric)	Non-enrollees					
% with use		0.2	0.2	0.2	0.2	0.2
Utilization per 1,000 user months		1,103.3	1,042.3	1,095.9	1,085.4	1,058.1
Utilization per 1,000 eligible months		1.9	1.8	1.8	1.7	1.6
Observation stays	Enrollees					
% with use		0.6	0.5	0.7	0.8	0.7
Utilization per 1,000 user months		1,208.3	1,068.4	1,076.7	1,076.4	1,110.6
Utilization per 1,000 eligible months		7.3	5.4	7.3	8.3	7.8
Observation stays	Non-enrollees					
% with use		0.7	0.8	0.8	0.9	0.7
Utilization per 1,000 user months		1,024.7	1,022.3	1,025.8	1,026.9	1,026.5
Utilization per 1,000 eligible months		7.3	7.8	8.1	8.8	6.9

(continued)

Table E-7 (continued)
Proportion and utilization of institutional and non-institutional services for demonstration enrollees and non-enrollees in South Carolina, February 1, 2015–December 31, 2020

Measures by setting	Group	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
Skilled nursing facility	Enrollees					
% with use		0.4	0.5	0.6	0.6	0.6
Utilization per 1,000 user months		1,027.3	1,103.7	1,092.4	1,050.8	1,049.8
Utilization per 1,000 eligible months		4.1	5.8	6.3	6.6	6.3
Skilled nursing facility	Non-enrollees					
% with use		1.0	0.7	0.8	0.9	1.2
Utilization per 1,000 user months		1,087.7	1,052.5	1,053.5	1,071.6	1,054.3
Utilization per 1,000 eligible months		11.2	7.8	8.9	9.7	12.1
Hospice	Enrollees					
% with use		0.9	0.3	0.2	0.4	0.6
Utilization per 1,000 user months		1,041.2	1,033.6	1,026.1	1,018.7	1,013.6
Utilization per 1,000 eligible months		9.1	3.3	2.6	3.6	5.8
Hospice	Non-enrollees					
% with use		1.8	0.6	0.9	1.3	1.0
Utilization per 1,000 user months		1,029.2	1,027.5	1,010.2	1,012.0	1,017.6
Utilization per 1,000 eligible months		18.7	6.4	9.0	12.9	10.3
Non-institutional setting						
Primary care E&M visits	Enrollees	40.7	40.5	41.5	42.8	40.0
% with use		1,965.7	1,643.2	1,640.6	1,690.6	1,736.1
Utilization per 1,000 user months		800.8	664.8	680.6	723.9	693.7
Utilization per 1,000 eligible months						
Primary care E&M visits	Non-enrollees					
% with use		47.7	50.6	53.1	54.1	49.3
Utilization per 1,000 user months		1,673.2	1,692.8	1,757.9	1,882.3	1,897.1
Utilization per 1,000 eligible months		798.2	857.0	932.7	1,017.7	935.6

(continued)

Table E-7 (continued)
Proportion and utilization of institutional and non-institutional services for demonstration enrollees and non-enrollees in South Carolina, February 1, 2015–December 31, 2020

Measures by setting	Group	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
Outpatient therapy (PT, OT, ST)	Enrollees					
% with use		0.9	0.9	1.1	1.3	1.2
Utilization per 1,000 user months		7,665.4	9,426.1	10,026.3	9,086.2	11,052.9
Utilization per 1,000 eligible months		70.0	81.7	111.5	116.9	127.7
Outpatient therapy (PT, OT, ST)	Non-enrollees					
% with use		1.9	1.5	2.6	3.6	3.1
Utilization per 1,000 user months		18,235.7	14,380.8	17,590.5	16,412.5	19,424.9
Utilization per 1,000 eligible months		337.5	210.5	451.9	585.1	601.1
Independent therapy (PT, OT, ST)	Enrollees					
% with use		0.5	0.5	0.7	0.9	0.6
Utilization per 1,000 user months		14,871.6	12,643.8	11,540.2	10,762.0	11,850.3
Utilization per 1,000 eligible months		79.2	60.2	81.6	95.4	76.5
Independent therapy (PT, OT, ST)	Non-enrollees					
% with use		0.7	0.9	1.0	1.1	0.8
Utilization per 1,000 user months		14,020.0	13,953.8	15,405.7	14,457.0	13,874.7
Utilization per 1,000 eligible months		91.2	124.5	159.3	154.4	116.7
Other hospital outpatient services	Enrollees					
% with use		17.2	19.5	22.3	24.4	22.8
Utilization per 1,000 user months		—	—	—	—	—
Utilization per 1,000 eligible months		—	—	—	—	—
Other hospital outpatient services	Non-enrollees					
% with use		25.3	26.8	28.4	28.3	25.3
Utilization per 1,000 user months		—	—	—	—	—
Utilization per 1,000 eligible months		—	—	—	—	—

— = data not available. E&M = evaluation and management; OT = occupational therapy; PT = physical therapy; ST = speech therapy.
[1] Includes acute admissions, inpatient rehabilitation, and long-term care hospital admissions.
SOURCE: RTI International analysis of Medicare data.

Table E-8
Quality of care and care coordination outcomes for demonstration enrollees and non-enrollees in South Carolina, February 1, 2015–December 31, 2020

Quality and care coordination measures	Group	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
30-day all-cause risk-standardized readmission rate (%)	Enrollees	18.1	16.9	16.5	15.2	15.7
	Non-enrollees	22.3	19.4	22.1	19.8	19.6
Preventable ED visits per 1,000 persons	Enrollees	26.7	26.4	28.5	32.2	24.6
	Non-enrollees	31.6	34.4	32.2	34.3	24.1
Rate of 30-day follow-up after hospitalization for mental illness (%)	Enrollees	32.3	25.0	27.1	26.7	26.0
	Non-enrollees	25.5	31.3	25.0	22.4	28.6
Ambulatory care sensitive condition admissions per 1,000 eligible months—overall composite (AHRQ PQI # 90)	Enrollees	6.4	4.6	4.0	4.0	3.6
	Non-enrollees	9.1	8.6	7.1	6.7	5.8
Ambulatory care sensitive condition admissions per 1,000 eligible months—chronic composite (AHRQ PQI # 92)	Enrollees	3.6	2.8	2.4	2.5	2.4
	Non-enrollees	5.3	5.7	4.4	4.1	3.7
Screening for clinical depression per 1,000 eligible months	Enrollees	1.4	1.0	3.6	5.4	8.1
	Non-enrollees	2.2	4.7	5.1	4.4	4.4
Pneumococcal vaccinations for eligible beneficiaries 65 and older per 1,000 eligible months	Enrollees	3.6	2.4	1.7	1.5	1.6
	Non-enrollees	8.3	11.0	3.8	3.0	2.5

AHRQ PQI = Agency for Healthcare Research and Quality Prevention Quality Indicator; ED = emergency department.

Table E-9 presents unadjusted descriptive statistics for the demonstration enrollees for services traditionally paid by Medicaid, to help understand the Medicaid utilization experience over time. Nursing home services and personal care services are excluded from analysis due to encounter data deemed incomplete. LTSS nursing facility service use derived from MMP-submitted Medicaid encounters is excluded from analysis in all FAI States because CMS and RTI decided it was not possible to reliably create this measure because we could not correctly identify all LTSS NF stays. Instead, each evaluation report includes an analysis of LTSS NF use using MDS data (see ***Table E-6***).

Table E-9
Medicaid use for demonstration enrollees in South Carolina, February 1, 2015– December 31, 2020

Measure	Demonstration year 1	Demonstration year 2	Demonstration year 3	Demonstration year 4	Demonstration year 5
HCBS services					
Users as percentage of enrollees per enrollee month (%)	1.03%	0.53%	1.13%	1.57%	1.41%
Service days per enrollee month	0.04	0.02	0.03	0.06	0.05
Service days per user month	3.48	3.31	3.02	3.87	3.65
Behavioral health services					
Users as percentage of enrollees per enrollee month (%)	1.31%	1.56%	1.84%	2.01%	2.07%
Service days per enrollee month	0.02	0.03	0.04	0.04	0.04
Service days per user month	1.91	2.14	2.15	2.22	2.11
Non-emergency medical transportation					
Users as percentage of enrollees per enrollee month (%)	3.31%	3.71%	4.31%	4.59%	4.35%
Service days per enrollee month	0.05	0.05	0.07	0.07	0.07
Service days per user month	1.38	1.43	1.57	1.57	1.72

HCBS = home and community-based services.

E.1 Service Use by Demographic Characteristics of Eligible Beneficiaries

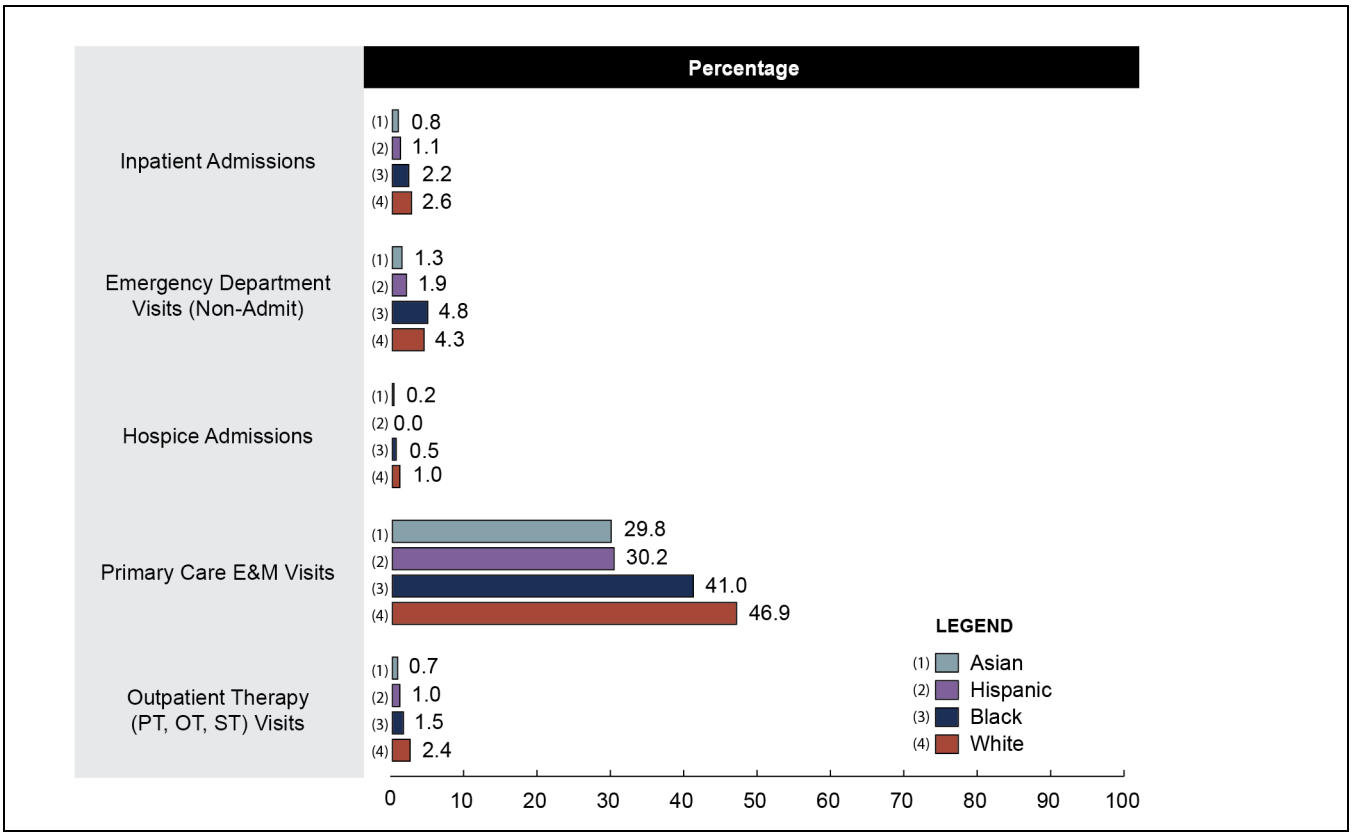
To examine any differences in racial and ethnic groups, ***Figures E-1, E-2***, and ***E-3*** provide month-level results for five settings of interest for South Carolina eligible beneficiaries: inpatient admissions, ED visits (non-admit), hospice admissions, primary care E&M visits, and outpatient therapy (physical therapy, occupational therapy, and speech therapy visits). Results across these five settings are displayed using three measures: percentage with any use of the respective service, counts per 1,000 eligible beneficiaries with any use of the respective service, and counts per 1,000 demonstration eligible beneficiaries.

Figure E-1 presents the percentage of use of selected Medicare services. Inpatient admissions, hospice admissions, primary E&M visits, and outpatient therapy visits were more prevalent among Whites than among other race categories. A slightly higher proportion of Black beneficiaries had ED visits relative to the utilization rate among other races.

Counts of services used among users of each respective service are presented in ***Figure E-2***. Hispanic beneficiaries had slightly more inpatient admissions and far fewer outpatient therapy visits relative to other racial groups in months when there was any use. White beneficiaries had slightly more primary care E&M visits, and Asian beneficiaries had the highest number of outpatient therapy visits.

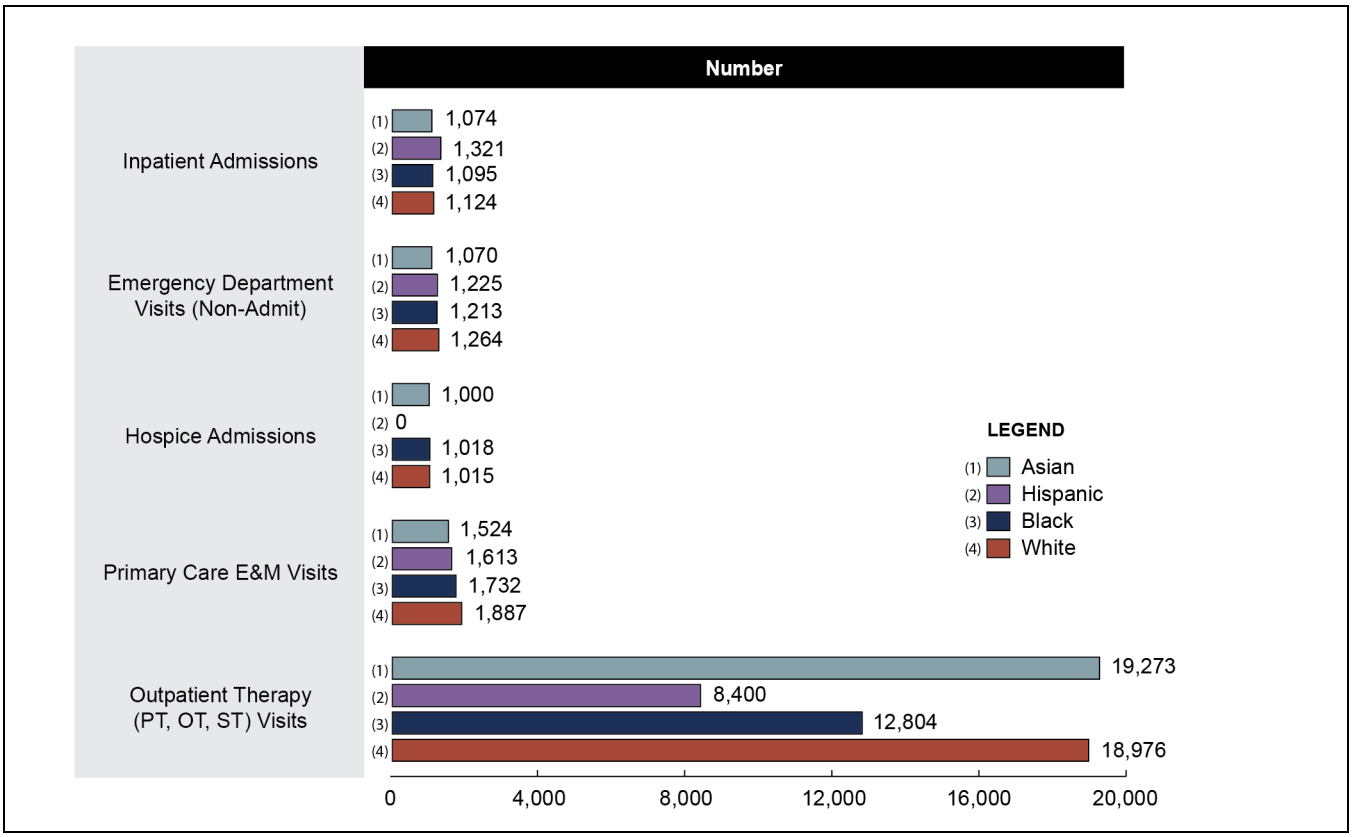
Figure E-3 presents counts of services across all South Carolina demonstration eligible beneficiaries regardless of having any use of the respective services. When looking at use for all eligible beneficiaries in all eligible months, the results are somewhat different from those of users of services in ***Figure E-2***. White beneficiaries had more inpatient admissions, primary care E&M visits, hospice admissions, and outpatient therapy visits relative to the other racial groups. Black beneficiaries had a higher number of ED visits relative to the other racial groups.

Figure E-1
Percent with use of selected Medicare services among South Carolina demonstration eligible beneficiaries, January 1, 2020–December 31, 2020



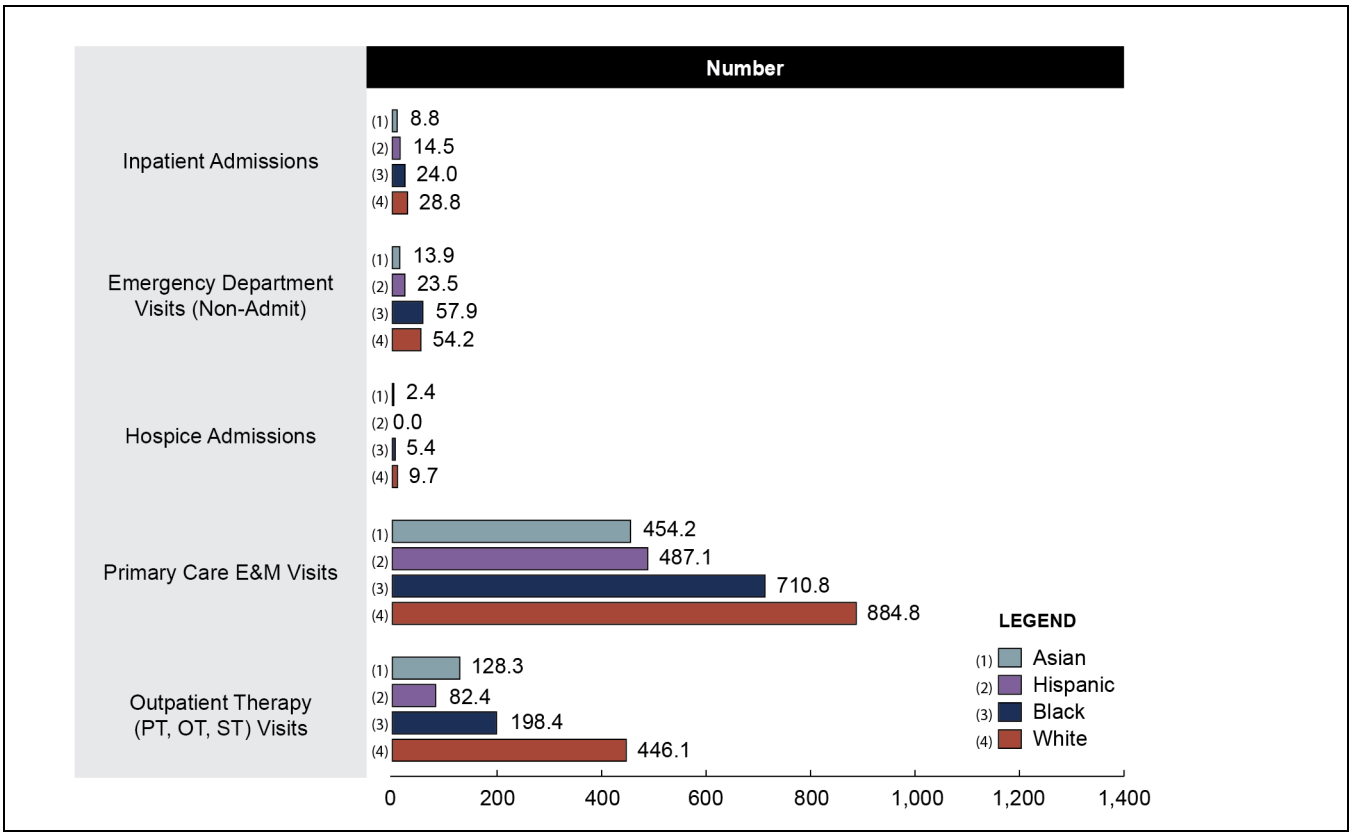
E&M = evaluation and management; OT = occupational therapy; PT = physical therapy; ST = speech therapy.

Figure E-2
Service use per 1,000 user months among South Carolina demonstration eligible beneficiaries, January 1, 2020–December 31, 2020



E&M = evaluation and management; OT = occupational therapy; PT = physical therapy; ST = speech therapy.

Figure E-3
Service use per 1,000 eligible months among South Carolina demonstration eligible beneficiaries, January 1, 2020–December 31, 2020



E&M = evaluation and management; OT = occupational therapy; PT = physical therapy; ST = speech therapy.

Appendix F

Cost Savings Methodology and Supplemental Tables

F.1 Cost Savings Methodology

To identify the demonstration group, RTI used quarterly files on demonstration eligible beneficiaries submitted by South Carolina. Comparison group beneficiaries were identified through a two-step process. First, we identified comparison areas based on market characteristics. Second, we applied all available eligibility criteria to beneficiaries in the identified comparison areas. This process is further described in ***Appendix C***. Once the two groups were finalized, we applied PS weighting in the DinD analysis to balance key characteristics between the two groups. For this analysis, in place of PS weights we used an entropy balance weight, described in more detail in ***Appendix C.***

RTI gathered predemonstration and demonstration monthly Medicare expenditure data for both the demonstration and comparison groups from two data sources, as summarized in ***Table F-1***. We obtained capitation payments paid to participating plans during the demonstration period, and payments to MA plans in the predemonstration and demonstration periods from the CMS Medicare Advantage and Part D Inquiry System (MARx). Part D payments were not included in this analysis. The capitation payments were the final reconciled payments paid by the Medicare program after taking into account risk score reconciliation and any associated retroactive adjustments in the system at the time of the data pull (September 2022). We also used Medicare FFS claims to calculate expenditures for eligible beneficiaries who were not enrolled in an MMP or MA plan. These FFS claims included all Medicare Parts A and B services.

Table F-1
Data sources for monthly Medicare expenditures

Group	Predemonstration period February 1, 2013 – January 31, 2015	Demonstration period February 1, 2015 – December 31, 2020
Demonstration	Medicare FFS MA capitation	Capitation rate for enrollees MA capitation for non-enrollees Medicare FFS for non-enrollees
Comparison	Medicare FFS MA capitation	Medicare FFS MA capitation

FFS = fee-for-service; MA = Medicare Advantage.

To estimate the effect of the demonstration on Medicare expenditures, we ran a generalized linear model with gamma distribution and log link. This is a commonly used approach in analysis of health care expenditure data. The model controlled for individual demographic and area-level characteristics, employed PS weighting, and adjusted for clustering of observations at the county level. The key policy variable of interest in the model was an interaction term measuring the effect of being part of the demonstration eligible group during the demonstration period, which estimates the demonstration's effect on Medicare expenditures.

F.1.1 Adjustments to Medicare Expenditures

Several adjustments were made to the monthly Medicare expenditures to ensure that observed expenditures variations are not due to differences in Medicare payment policies in

different areas of the country or the construction of the capitation rates. ***Table F-2*** summarizes each adjustment and the application of the adjustments to FFS expenditures or to the capitation rate.

Table F-2
Adjustments to Medicare expenditures variable

Data source	Adjustment description	Reason for adjustment	Adjustment detail
FFS	Indirect Medical Education (IME)	Capitation rates do not include IME.	Do not include IME amount from FFS payments.
FFS	Disproportionate Share Hospital (DSH) Payments and Uncompensated Care Payments (UCP)	The capitation rates reflect DSH and UCP adjustments.	Include DSH and UCP payments in total FFS payment amounts.
FFS	Medicare Sequestration Payment Reductions	Under sequestration Medicare payments were reduced by 2% starting April 1, 2013. Because the predemonstration period includes months prior to April 1, 2013, it is necessary to apply the adjustment to these months of data.	Reduced FFS claim payments incurred before April 2013 by 2%.
Capitation rate (MA and MMP)	Medicare Sequestration Payment Reductions	Under sequestration Medicare payments were reduced by 2% starting April 1, 2013. Sequestration is not reflected in the capitation rates.	Reduced capitation rate by 2%.
Capitation rate (MA)	Bad debt	The Medicare portion of the capitation rate includes an upward adjustment to account for bad debt. Bad debt is not included in the FFS claim payments and therefore needs to be removed from the capitation rate for the savings analysis. (Note: “bad debt” is reflected in the hospital “pass through” payment.)	Reduced capitation rate to account for bad debt load (historical bad debt baseline percentage). This is 0.91% for CY 2013, 0.89% for CY 2014, 0.89% for CY 2015, 0.97% for CY 2016, 0.81% for CY 2017, 0.82% for CY 2018, 0.84% for CY 2019, and 0.81% for CY 2020.

(continued)

Table F-2 (continued)
Adjustments to Medicare expenditures variable

Data source	Adjustment description	Reason for adjustment	Adjustment detail
Capitation rate (MMP)	Bad debt	The Medicare portion of the capitation rate includes an upward adjustment to account for bad debt. Bad debt is not included in the FFS claim payments and therefore needs to be removed from the capitation rate for the savings analysis. (Note, "bad debt" is reflected in the hospital "pass through" payment.)	Reduced capitation rate to account for bad debt load (historical bad debt baseline percentage). This is 0.89% for CY 2015, 0.97% for CY 2016, 0.81% for CY 2017, 0.82% for CY 2018, 0.84% for CY 2019, and 0.81% for CY 2020. Reduced the FFS portion of the capitation rate by an additional 1.71% for CY 2015, 1.84% for CY 2016, 1.74% for CY 2017, 1.77% for CY 2018, 1.94% for 2019, and 1.87% for 2020 to account for the disproportional share of bad debt attributable to MMP enrollees in Medicare FFS.
FFS and capitation rate (MA and MMP)	Average Geographic Adjustments (AGA)	The Medicare portion of the capitation rate reflects the most current hospital wage index and physician geographic practice cost index by county. FFS claims also reflect geographic payment adjustments. To ensure that change over time is not related to differential change in geographic payment adjustments, both the FFS and the capitation rates were "unadjusted" using the appropriate county-specific AGA factor.	Medicare FFS expenditures were divided by the appropriate county-specific 1-year AGA factor for each year. Capitation rates were divided by the appropriate county-specific 5-year AGA factor for each year. Note that the AGA factor applied to the capitated rates for 2014 reflected the 50/50 blend that was applicable to the payment year.
Capitation rate (MA and MMP)	Education user fee	No adjustment needed.	Capitation rates in the MARx database do not reflect the education user fee adjustment (this adjustment is applied at the contract level). Note, education user fees are not applicable in the FFS context and do not cover specific Part A and Part B services. While they result in a small reduction to the capitation payment received by MMPs, we did not account for this reduction in the capitated rate.

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Table F-2 (continued)
Adjustments to Medicare expenditures variable

Data source	Adjustment description	Reason for adjustment	Adjustment detail
Capitation rate (MMP)	Quality withhold	A 1% quality withhold was applied in the first demonstration year, 2% was applied in the second demonstration year, and a 3% quality withhold was applied in the third through fifth demonstration year but was not reflected in the capitation rate used in the analysis.	Final quality withhold repayments for CY 2015, CY 2016, CY 2017, CY 2018, CY 2019, and CY 2020 were incorporated into the dependent variable construction.

CY = calendar year; FFS = fee-for-service; MA = Medicare Advantage; MARx = Medicare Advantage and Part D Inquiry System; MMP = Medicare-Medicaid Plan.

The capitation payments in MARx reflect the savings assumptions applied to the Medicare components of the rate (1 percent for the first demonstration year, 2 percent for the second demonstration year, 3 percent for the third through the fifth demonstration years), but do not reflect the quality withhold amounts.

F.1.2 Model Covariates

Model covariates included the following variables, which were also included in the comparison group selection process. Variables were included in the model after variance inflation factor testing.

- Demographic variables included in the Medicare models were:
  - Age
  - Sex
  - Race/ethnicity
  - Enrolled in another Medicare shared saving program
  - ESRD status
  - Disability as reason for Medicare entitlement
  - MA status
- Area-level variables included in the Medicare models were:
  - Medicare spending per dually eligible beneficiary age 19 or older
  - MA penetration rate
  - Medicaid-to-Medicare FFS fee index for all services
  - Proportion of dually eligible beneficiaries using
    - Nursing facilities age 65 or older
    - HCBS age 65 or older

    - Personal care, age 65 or older
  - Population per square mile, all ages
  - Physicians per 1,000 population
  - Percentage of population living in married household
  - Percentage of households with member greater than age 60
  - Percentage of households with member less than age 18
  - Percentage of adults age 65 or older with college degree
  - Unemployment rate among adults age 65 or older
  - Percentage of adults age 65 or older with self-care limitation
  - MSA
  - Distance to nearest hospital
  - Distance to nearest nursing home
  - Pandemic vulnerability index

F.1.3 Populations Analyzed

The population analyzed for the Cost Savings outcome include all demonstration eligible beneficiaries, as well as demonstration enrollees. ***Table F-3*** presents descriptive statistics of select characteristics for four population subgroups in demonstration year 5: all demonstration eligible beneficiaries, the comparison group, all MMP enrollees, and all non-MMP enrollees.

The most prevalent age group among all groups was age 65 to 74 (ranging from 59.6 to 60.6 percent). All four groups were predominantly African American (ranging from 53.0 to 56.0 percent) with White being the next highest percentage (ranging from 40.4 to 42.4 percent).

Across all groups, most beneficiaries were female (63.5 to 69.5 percent), did not have disability as the primary reason for Medicare entitlement, did not have ESRD, and resided in a metropolitan area.

The HCC score is a measure of the predicted relative annual cost of a Medicare beneficiary based on the diagnosis codes present in recent Medicare claims. Beneficiaries with a score of 1 are predicted to have average cost in terms of annual Medicare expenditures. Beneficiaries with HCC scores less than 1 are predicted to have below average costs, whereas those with scores of 2 are predicted to have twice the average annual cost. Average HCC scores ranged between 1.16 and 1.28 among all groups.

Table F-3
Characteristics of eligible beneficiaries in South Carolina and comparison states in demonstration year 5 by group

Characteristics	Demonstration group	Comparison group	Demonstration group, enrollees	Demonstration group, non-enrollees
Weighted number of eligible beneficiaries	53,116	46,067	19,124	33,992
Demographic characteristics				
Age				
65 to 74	60.3	59.6	59.9	60.6
75 to 84	27.4	27.7	26.8	27.7
85 and older	12.3	12.6	13.4	11.7
Female				
No	32.63	32.97	36.49	30.46
Yes	67.37	67.03	63.51	69.54
Race/ethnicity				
White	40.8	42.4	40.4	41.0
African American	55.5	53.0	54.6	56.0
Hispanic	1.2	1.2	1.7	0.9
Asian	1.2	1.5	1.7	0.9
Other	1.4	1.9	1.6	1.3
Disability as reason for original Medicare entitlement				
No	82.34	82.42	83.55	81.65
Yes	17.66	17.58	16.45	18.35
ESRD status				
No	99.83	100.00	99.53	100.00
Yes	0.17	0.00	0.47	0.00
MSA				
No	31.38	29.00	31.85	31.11
Yes	68.62	71.00	68.15	68.89
Participating in Shared Savings Program				
No	95.23	94.73	99.98	92.56
Yes	4.77	5.27	0.02	7.44
HCC score	1.24	1.24	1.16	1.28

(continued)

Table F-3 (continued)
Characteristics of eligible beneficiaries in South Carolina and comparison states in demonstration year 5 by group

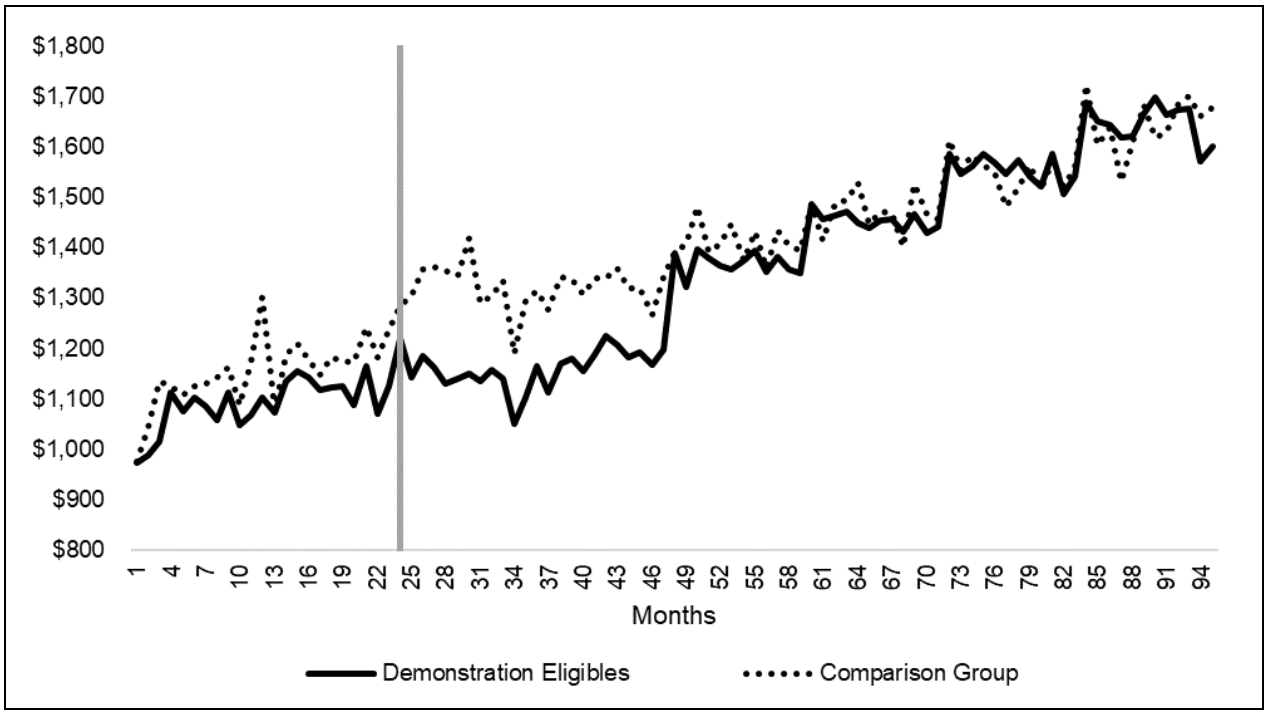
Characteristics	Demonstration group	Comparison group	Demonstration group, enrollees	Demonstration group, non-enrollees
Market characteristics				
Medicare spending per dual, ages 19+ ($)	16,432.24	16,420.30	16,434.85	16,430.77
MA penetration rate	0.22	0.20	0.22	0.22
Medicaid-to-Medicare fee index (FFS)	0.80	0.79	0.80	0.80
Medicaid spending per dual, ages 19+ ($)	8,753.75	12,379.81	8,733.49	8,765.15
Fraction of dually eligible beneficiaries using NF, ages 65+	0.16	0.23	0.16	0.16
Fraction of dually eligible beneficiaries using HCBS, ages 65+	0.14	0.15	0.14	0.14
Fraction of dually eligible beneficiaries using personal care, ages 19+	0.14	0.13	0.14	0.14
Fraction of dually eligible beneficiaries with Medicaid managed care, ages 19+	0.00	0.00	0.00	0.00
Population per square mile, all ages	186.27	256.88	185.71	186.59
Patient care physicians per 1,000 population	0.66	0.66	0.67	0.66
Area characteristics				
% of population in Medicare Advantage	46.27	50.59	NA	72.30
% of population living in married households	63.98	64.18	63.98	63.98
% of adults age 65 or older with college education	20.91	20.70	21.17	20.77
% of adults age 65 or older with self-care limitations	8.50	8.64	8.37	8.57
% of adults age 65 or older unemployed	2.92	3.01	2.84	2.96
% of household with individuals younger than 18	28.20	28.37	28.07	28.27
% of household with individuals older than 60	44.03	43.43	44.08	44.00
Distance to nearest hospital	10.51	10.12	10.48	10.53
Distance to nearest nursing facility	8.17	7.55	8.20	8.15
Pandemic Vulnerability Index	0.55	0.53	0.55	0.55

ESRD = end-stage renal disease; FFS = fee-for-service; HCBS = home and community-based services; HCC = Hierarchical Condition Category; NF = nursing facility; MA = Medicare Advantage; MSA = metropolitan statistical area.
NOTE: Analysis conducted on demonstration eligible FFS population and Medicare-Medicaid Plan enrollees.
SOURCE: RTI Analysis of South Carolina demonstration eligible and comparison group Medicare data.

F.2 Medicare Descriptive Results

Once we finalized the adjustments to the dependent variable, we tested a key assumption of a DinD model: parallel trends in the predemonstration period. We plotted the mean monthly Medicare expenditures for both the comparison group and demonstration group, with the PS weights applied. ***Figure F-1*** shows the resulting plot and suggests that there were parallel trends in the predemonstration period.

Figure F-1
Mean monthly Medicare expenditures (weighted), predemonstration and demonstration periods, South Carolina demonstration and comparison group, February 2013–December 2020



SOURCE: RTI Analysis of South Carolina demonstration eligible and comparison group Medicare data.

The DinD values in ***Tables F-4*** through ***F-13*** represent the overall impact on savings using descriptive statistics. These effects are descriptive in that they are arithmetic combinations of simple means, without controlling for covariates. The change in the demonstration group minus the change in the comparison group is the DinD value. This value would be equal to zero if the differences between predemonstration and the demonstration year were the same for both the demonstration group and the comparison group. A negative value would indicate savings for the demonstration group, and a positive value would indicate losses for the demonstration group. However, if the DinD confidence interval includes zero, then the value is not statistically significant. The results in ***Tables F-4*** through ***F-13*** are only meant to provide a descriptive exploration of the results; the results presented in ***Section 6, Demonstration Impact on Cost Savings*** and ***Table F-14*** represent the most accurate adjusted impact on Medicare costs.

Tables F-4 through ***F-8*** show the mean monthly Medicare expenditures for the demonstration group and comparison group in the predemonstration and each demonstration period, unweighted. The unweighted tables show an increase in mean monthly Medicare expenditures in all 5 demonstration years for both the demonstration and comparison groups. The weighted tables show a similar pattern with increases in mean expenditures for both groups in each of the 5 demonstration years (***Tables F-9*** through ***F-13***).

Table F-4
Mean monthly Medicare expenditures for South Carolina demonstration group and comparison group, predemonstration period and demonstration year 1, unweighted

Group	Predemonstration period (February 2013–January 2015) (95% confidence intervals)	Demonstration year 1 (February 2015–December 2016) (95% confidence intervals)	Difference (95% confidence intervals)
Demonstration	$1,095.75 ($1,073.41, $1,118.09)	$1,158.28 ($1,133.64, $1,182.93)	$62.53 ($42.42, $82.65)
Comparison	$1,190.61 ($1,104.23, $1,209.36)	$1,256.16 ($1,170.11, $1,381.40)	$65.55 ($43.08, $88.03)
DinD	N/A	N/A	−$3.02 (−$32.74, $26.71)

DinD = difference-in-differences; N/A = not applicable.
SOURCE: RTI analysis of Medicare claims.

Table F-5
Mean monthly Medicare expenditures for South Carolina demonstration group and comparison group, predemonstration period and demonstration year 2, unweighted

Group	Predemonstration period (February 2013–January 2015) (95% confidence intervals)	Demonstration year 2 (January 2017–December 2017) (95% confidence intervals)	Difference (95% confidence intervals)
Demonstration	$1,095.75 ($1,073.41, $1,118.09)	$1,368.13 ($1,336.87, $1,399.39)	$272.38 ($243.03, $301.72)
Comparison	$1,190.61 ($1,104.23, $1,276.98)	$1,353.85 ($1,273.65, $1,434.05)	$163.24 ($133.60, $192.89)
DinD	N/A	N/A	$109.14 ($68.18, $150.09)

DinD = difference-in-differences; N/A = not applicable.
SOURCE: RTI analysis of Medicare claims.

Table F-6
Mean monthly Medicare expenditures for South Carolina demonstration group and comparison group, predemonstration period and demonstration year 3, unweighted

Group	Predemonstration period (February 2013–January 2015) (95% confidence intervals)	Demonstration year 3 (January 2018–December 2018) (95% confidence intervals)	Difference (95% confidence intervals)
Demonstration	$1,095.75 ($1,073.41, $1,118.09)	$1,453.84 ($,1418.34, $1,489.34)	$358.09 ($321.88, $394.30)
Comparison	$1,190.61 ($1,104.23, $1,276.98)	$1,415.29 ($1,348.42, $1,482.16)	$224.68 ($191.36, $258.00)
DinD	N/A	N/A	$133.41 ($85.14, $181.68)

DinD = difference-in-differences; N/A = not applicable.
SOURCE: RTI analysis of Medicare claims.

Table F-7
Mean monthly Medicare expenditures for South Carolina demonstration group and comparison group, predemonstration period and demonstration year 4, unweighted

Group	Predemonstration period (February 2013–January 2015) (95% confidence intervals)	Demonstration year 4 (January 2019–December 2019) (95% confidence intervals)	Difference (95% confidence intervals)
Demonstration	$1,095.75 ($1,073.41, $1,118.09)	$1,555.30 ($1,518.45, $1,592.16)	$459.55 ($424.46, $494.65)
Comparison	$1,190.61 ($1,104.23, $1,276.98)	$1,524.32 ($1,448.89, $1,599.75)	$333.71 ($299.52, $367.91)
DinD	N/A	N/A	$125.84 ($77.79, $173.88)

DinD = difference-in-differences; N/A = not applicable.
SOURCE: RTI analysis of Medicare claims.

Table F-8
Mean monthly Medicare expenditures for South Carolina demonstration group and comparison group, predemonstration period and demonstration year 5, unweighted

Group	Predemonstration period (February 2013–January 2015) (95% confidence intervals)	Demonstration year 5 (January 2020–December 2020) (95% confidence intervals)	Difference (95% confidence intervals)
Demonstration	$1,095.75 ($1,073.41, $1,118.09)	$1,647.79 ($1,609.22, $1,686.36)	$552.04 ($512.12, $591.96)
Comparison	$1,190.61 ($1,104.23, $1,276.98)	$1,611.38 ($1,514.54, $1,708.23)	$420.78 ($384.87, $456.69)
DinD	N/A	N/A	$131.26 ($78.65, $183.88)

DinD = difference-in-differences; N/A = not applicable.
SOURCE: RTI analysis of Medicare claims.

Table F-9
Mean monthly Medicare expenditures for South Carolina demonstration group and comparison group, predemonstration period and demonstration year 1, weighted

Group	Predemonstration period (February 2013–January 2015) (95% confidence intervals)	Demonstration year 1 (February 2015–December 2016) (95% confidence intervals)	Difference (95% confidence intervals)
Demonstration	$1,095.75 ($1,073.41, $1,118.09)	$1,158.28 ($1,133.64, $1,182.93)	$62.53 ($42.42, $82.65)
Comparison	$1,158.84 ($1,108.32, $1,209.36)	$1,322.04 ($1,262.68, $1,381.40)	$163.20 ($138.29, $188.10)
DinD	N/A	N/A	−$100.66 (−$132.53, −$68.79)

DinD = difference-in-differences; N/A = not applicable.
SOURCE: RTI analysis of Medicare claims.

Table F-10
Mean monthly Medicare expenditures for South Carolina demonstration group and comparison group, predemonstration period and demonstration year 2, weighted

Group	Predemonstration period (February 2013–January 2015) (95% confidence intervals)	Demonstration year 2 (January 2017–December 2017) (95% confidence intervals)	Difference (95% confidence intervals)
Demonstration	$1,095.75 ($1,073.41, $1,118.09)	$1,368.13 ($1,336.87, $1,399.39)	$272.38 ($243.03, $301.72)
Comparison	$1,158.84 ($1,108.32, $1,209.36)	$1,409.66 ($1,353.71, $1,465.62)	$250.82 ($215.58, $286.06)
DinD	N/A	N/A	$21.56 (−$23.51, $66.63)

DinD = difference-in-differences; N/A = not applicable.
SOURCE: RTI analysis of Medicare claims.

Table F-11
Mean monthly Medicare expenditures for South Carolina demonstration group and comparison group, predemonstration period and demonstration year 3, weighted

Group	Predemonstration period (February 2013–January 2015) (95% confidence intervals)	Demonstration year 3 (January 2018–December 2018) (95% confidence intervals)	Difference (95% confidence intervals)
Demonstration	$1,095.75 ($1,073.41, $1,118.09)	$1,453.84 ($1,418.34, $1,489.34)	$358.09 ($321.88, $394.30)
Comparison	$1,158.84 ($1,108.32, $1,209.36)	$1,471.03 ($1,424.26, $1,517.80)	$312.19 ($277.13, $347.25)
DinD	N/A	N/A	$45.90 (−$3.58, $95.39)

DinD = difference-in-differences; N/A = not applicable.
SOURCE: RTI analysis of Medicare claims.

Table F-12
Mean monthly Medicare expenditures for South Carolina demonstration group and comparison group, predemonstration period and demonstration year 4, weighted

Group	Predemonstration period (February 2013–January 2015) (95% confidence intervals)	Demonstration year 4 (January 2019–December 2019) (95% confidence intervals)	Difference (95% confidence intervals)
Demonstration	$1,095.75 ($1,073.41, $1,118.09)	$1,555.30 ($1,518.45, $1,592.16)	$459.55 ($424.46, $494.65)
Comparison	$1,158.84 ($1,108.32, $1,209.36)	$1,549.87 ($1,496.34, $1,603.40)	$391.03 ($346.78, $435.27)
DinD	N/A	N/A	$68.53 ($13.09, $123.96)

DinD = difference-in-differences; N/A = not applicable.
SOURCE: RTI analysis of Medicare claims.

Table F-13
Mean monthly Medicare expenditures for South Carolina demonstration group and comparison group, predemonstration period and demonstration year 5, weighted

Group	Predemonstration period (February 2013–January 2015) (95% confidence intervals)	Demonstration year 5 (January 2020–December 2020) (95% confidence intervals)	Difference (95% confidence intervals)
Demonstration	$1,095.75 ($1,073.41, $1,118.09)	$1,647.79 ($1,609.22, $1,686.36)	$552.04 ($512.12, $591.96)
Comparison	$1,158.84 ($1,108.32, $1,209.36)	$1,647.06 ($1,577.93, $1,716.20)	$488.22 ($446.12, $530.32)
DinD	N/A	N/A	$63.82 ($6.93, $120.71)

DinD = difference-in-differences; N/A = not applicable.
SOURCE: RTI analysis of Medicare claims.

F.3 Medicare Regression Results

Table F-14 shows the main results from the DinD analysis for demonstration years 1–5 and for the entire demonstration period, controlling for beneficiary demographics and market characteristics. Relative to the comparison group, the demonstration was associated with statistically significant cost increases to the Medicare program during demonstration years 3 through 5, although it was not associated with a statistically significant increase in Medicare costs during demonstration year 2 and was associated with a statistically significant decrease in demonstration year 1. The cumulative impact estimate over all 5 demonstration years was statistically significant suggesting that overall, the demonstration was associated with increases in Medicare costs of $46.14 per member per month (PMPM).

Table F-14
Cumulative and annual demonstration effects on Medicare Parts A and B costs in South Carolina, demonstration years 1–5, February 1, 2015– December 31, 2020

Period	Adjusted coefficient DinD ($)	*p*-value	95% confidence interval ($)	90% confidence interval ($)
Demonstration Year 1 (February 2015–December 2016)	−69.09	0.0000	(−101.00, −37.18)	(−95.87, −42.31)
Demonstration Year 2 (January 2017–December 20157)	34.79	0.1120	(−8.12, 77.70)	(−1.22, 70.80)
Demonstration Year 3 (January 2018–December 2018)	66.78	0.0143	(13.33, 120.23)	(21.92, 111.63)
Demonstration Year 4 (January 2019–December 2019)	114.52	0.0003	(52.80, 176.24)	(62.72, 166.32)
Demonstration Year 5 (January 2020–December 2020)	125.00	0.0001	(63.38, 186.62)	(73.29, 176.71)
Cumulative (Demonstration Years 1–5, February 2015–December 2020)	46.14	0.0291	(4.69, 87.59)	(11.36, 80.93)

DinD = difference-in-differences.
SOURCE: RTI analysis of Medicare claims.

Table F-15 provides an illustrative example of the generalized linear model output for each covariate on mean monthly Medicare expenditures across the entire demonstration period.

Table F-15
Generalized linear model results on monthly Medicare expenditures, South Carolina and comparison states
(n = 6,884,429 person months)

Independent variables	Coefficient	Standard error	z-value	*p*-value
Demonstration group	−0.1265	0.0243	−5.21	0.000
Post period	0.1640	0.0106	15.46	0.000
Interaction of post period x demonstration group	0.0330	0.0153	2.17	0.030
Age (continuous)	0.0151	0.0006	24.06	0.000
Asian	−0.6792	0.0258	−26.35	0.000
Black	−0.1196	0.0123	−9.68	0.000
Female	−0.0749	0.0083	−9.05	0.000
Hispanic	−0.5213	0.0324	−16.08	0.000
Other race/ethnicity	−0.4268	0.0334	−12.77	0.000
Disability as reason for Medicare entitlement	0.2165	0.0098	22.05	0.000
End-stage renal disease	1.9496	0.0273	71.46	0.000
Metropolitan statistical area residence	0.0933	0.0241	3.86	0.000

(continued)

Table F-15 (continued)
Generalized linear model results on monthly Medicare expenditures, South Carolina and comparison states
(n = 6,884,429 person months)

Independent variables	Coefficient	Standard error	z-value	*p*-value
Participation in other Shared Savings Program	0.0784	0.0236	3.32	0.001
Medicare Advantage status	0.2617	0.0124	21.18	0.000
Patient care physicians per 1,000 population	0.0356	0.0837	0.43	0.671
Medicare Advantage penetration rate	0.1178	0.1526	0.77	0.440
Population per square mile	−0.0002	0.0001	−2.03	0.042
Medicaid-to-Medicare fee index (FFS)	0.6825	0.3326	2.05	0.040
Medicare spending per dually eligible beneficiary	0.0000	0.0000	−3.36	0.001
Fraction of dually eligible beneficiaries using HCBS, ages 65+	0.6890	0.2263	3.04	0.002
Fraction of dually eligible beneficiaries using nursing facility, ages 65+	−0.6398	0.2358	−2.71	0.007
Fraction of dually eligible beneficiaries using personal care, ages 19+	0.1065	0.1228	0.87	0.386
Percent of adults with college education	0.0005	0.0005	0.99	0.320
Percent of adults with self-care limitation	0.0002	0.0006	0.36	0.716
Percent of households with individuals older than 60	0.0006	0.0006	1.01	0.312
Percent of households with individuals younger than 18	0.0001	0.0008	0.10	0.918
Percent of population married	−0.0007	0.0004	−1.56	0.118
Percent of adults who are unemployed	−0.0003	0.0006	−0.52	0.607
Distance to nearest hospital	−0.0017	0.0009	−1.94	0.053
Distance to nearest nursing facility	0.0003	0.0010	0.27	0.787
Pandemic Vulnerability Index	0.2475	0.0125	19.77	0.000
Intercept	5.8983	0.3290	17.93	0.000

FFS = fee-for-service; HCBS = home and community-based services.
SOURCE: RTI analysis of Medicare claims.

Table F-16 presents the results from the DinD analysis for the enrollee-only subgroup. The enrollee subgroup analysis focused on beneficiaries identified as enrolled for at least 3 months in the demonstration period and with at least 3 months of baseline eligibility. Note that a subset of the comparison group developed for the ITT analysis was used in the enrollee subgroup analyses. Comparison group beneficiaries used in the enrollee subgroup analyses were required to have at least 3 months of eligibility in the demonstration period (February 1, 2015–December 31, 2020) and at least 3 months of eligibility in the predemonstration period (February 1, 2013–January 31, 2015), analogous to the criteria for identifying enrollees. The results indicate statistically significant additional costs associated with enrollees. This enrollee subgroup analysis

is limited by the absence of person-level data on characteristics that potentially would lead an individual in a comparison area to enroll in a similar demonstration, and thus the results should only be considered in the context of this limitation.[40]

Table F-16
Cumulative and annual demonstration effects on Medicare Parts A and B costs among enrolled beneficiaries in South Carolina, demonstration years 1–5, February 1, 2015–December 31, 2020

Period	Adjusted coefficient DinD ($)	*p*-value	95% confidence interval ($)	90% confidence interval ($)
Demonstration Year 1 (February 2015–December 2016)	112.65	<0.001	(81.60, 143.69)	(86.59, 138.70)
Demonstration Year 2 (January 2017– December 2017)	215.31	<0.001	(158.01, 272.61)	(167.22, 263.40)
Demonstration Year 3 (January 2018– December 2018)	241.84	<0.001	(181.04, 302.64)	(190.81, 292.86)
Demonstration Year 4 (January 2019– December 2019)	373.03	<0.001	(310.82, 435.24)	(320.83, 425.24)
Demonstration Year 5 (January 2020– December 2020)	445.16	<0.001	(360.51, 529.81)	(374.12, 516.20)
Cumulative (Demonstration Years 1–5, February 2015–December 2020)	248.44	<0.001	(205.18, 291.69)	(212.14, 284.74)

DinD = difference-in-differences.
SOURCE: RTI analysis of Medicare claims.

F.5 Medicaid Data Quality

The evaluation team was unable to complete a Medicaid impact evaluation due to limitations of available claims data. During the course of implementation, some MMP payments and capitation adjustments were made manually and not reflected in claims submitted to T-MSIS. After conferring with state representatives and CMS, the evaluation team concluded that a T-MSIS claims-based impact analysis would not accurately capture true demonstration spending.

[40] Additionally, we ran a supplemental analysis that included an "enrollment" term in the main regression model. We expected that the coefficient and marginal effect of the "enrollment" term on the outcome to be in same direction and statistical significance of the overall effect. The result of this model supports our findings, those who were enrolled had an impact estimate in the same direction and larger magnitude than the overall DinD estimate.

Appendix G

Supplemental Analyses

G.1 Service Utilization Supplemental Analyses

Improved care coordination, a cornerstone of the State's MMP demonstration efforts, is expected to impact service utilization patterns by increasing access to primary care and reducing hospitalizations and emergency care. To better understand the generally favorable demonstration impact results described in ***Section 5***, ***Demonstration Impact on Service Utilization and Quality of Care***, RTI conducted the following descriptive analyses:

- A cohort analysis comparing the predemonstration trends of select service utilization outcomes among beneficiaries who were enrolled at any point during demonstration year 1 with beneficiaries who were eligible but never enrolled (ENE) in demonstration year 1.
- A cross-sectional analysis of mortality rates among enrolled beneficiaries and eligible but not enrolled beneficiaries during the entire study period.

These analyses provide more context for the DinD results reported in ***Section 5, Demonstration Impact on Service Utilization and Quality of Care***, by illustrating the predemonstration service utilization and risk profile of the beneficiaries who enrolled in the demonstration, relative to the demonstration eligible population who did not enroll. If the demonstration enrolls beneficiaries who have lower service utilization rates in the predemonstration period than the ENE, then this favorable selection into enrollment may decrease the likelihood of observing any desired demonstration impact on high-cost measures such as inpatient admissions, ED use, and SNF admissions. This analysis does not, however, explain statistically significant unfavorable increases in these measures.

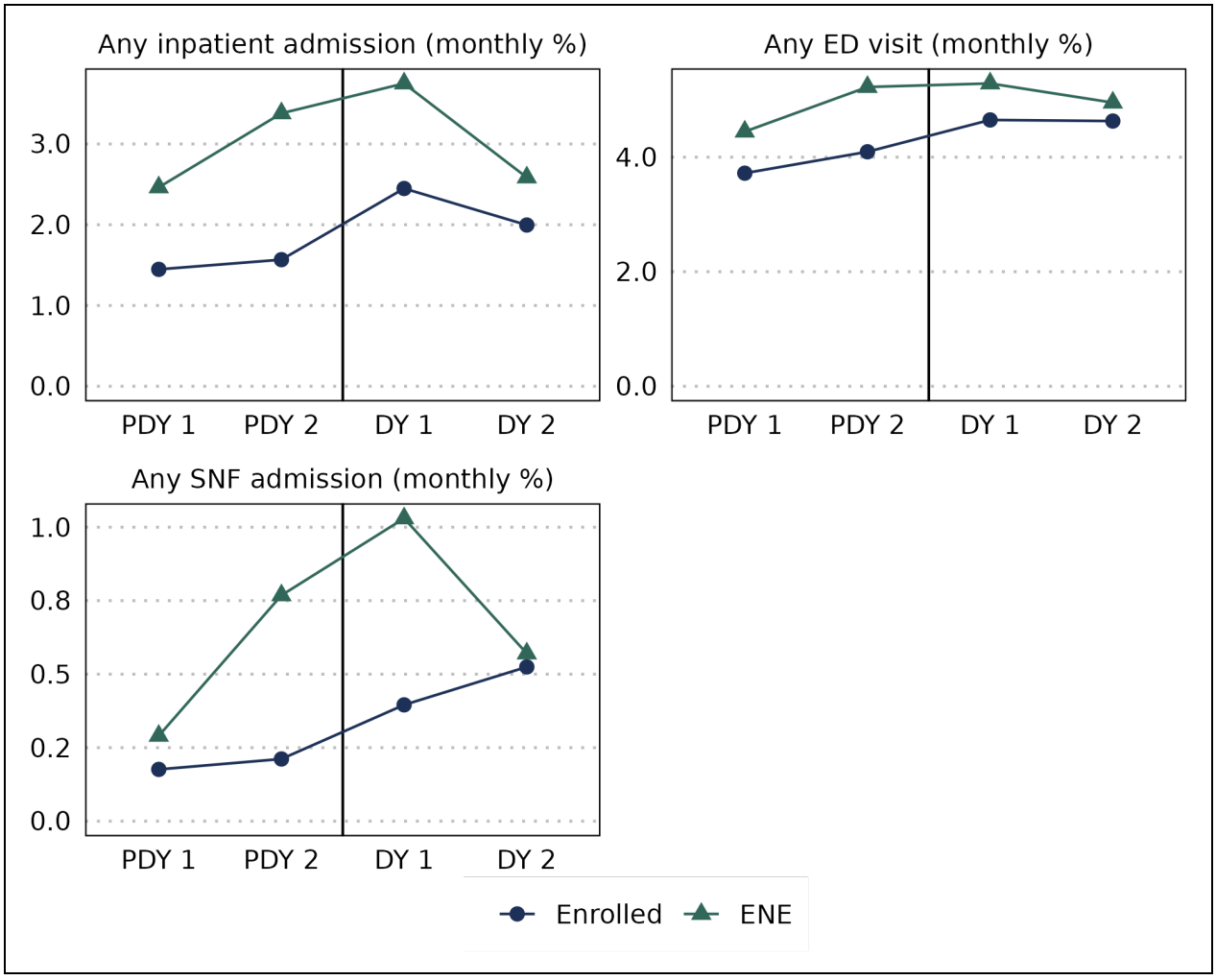
G.1.1 Pre-enrollment Cohort Analysis

The purpose of this analysis was to compare the predemonstration utilization experience of Medicare FFS beneficiaries who enrolled in an MMP during demonstration year 1 with the utilization experience of those who were ENE in demonstration year 1. The measures we analyzed include any inpatient admission, any ED use, and any SNF admission as described in ***Appendix D.*** The analysis included individuals who were eligible during demonstration year 1. Enrolled and ENE cohorts were defined by determining whether a beneficiary was enrolled at any point during demonstration year 1. ***Figure G-1*** shows the trends for the enrolled and ENE groups in 2 predemonstration years and the first 2 demonstration years. The number of beneficiary months and utilization rates are presented in ***Table G-1***.

- The pre-enrollment differences in inpatient use, ED use, and SNF use between the demonstration year 1 enrolled and ENE cohorts provide evidence of favorable selection into the MMPs. ***Figure G-1*** illustrates that the enrolled group had lower utilization of these services compared to the ENE cohort during the predemonstration and demonstration periods.
- These differences provide evidence of favorable selection, as beneficiaries in the predemonstration period who enrolled in MMPs used fewer high-intensity and high-cost services than those who were ENE.

- Favorable selection into the MMPs may impact the likelihood or extent of observing a favorable demonstration impact on these measures. However, our results described in ***Section 5, Demonstration Impact on Service Utilization and Quality of Care*** show that the demonstration had favorable effects on these measures. Instead of favorable selection, another possibility may be that despite lower predemonstration utilization among enrollees the demonstration was still successful in managing services and coordinating care for enrollees well enough to drive down the use of the services relative to the comparison group.

Figure G-1
Monthly percent and count of service utilization among eligible months by demonstration year 1 enrollment in South Carolina, February 1, 2013–December 31, 2017



DY = demonstration year; ED = emergency department; ENE = eligible but never enrolled; PDY = predemonstration year; SNF = skilled nursing facility.

Table G-1
Service utilization by demonstration year 1 enrollment in South Carolina, February 1, 2013–December 31, 2017

Period	N (beneficiary months)		Any inpatient admission (monthly %)		Any ED visit (monthly %)		Any SNF admission (monthly %)	
	Enrolled	ENE	Enrolled	ENE	Enrolled	ENE	Enrolled	ENE
PDY 1	30,670	56,836	1.45	2.46	3.72	4.45	0.18	0.29
PDY 2	34,513	64,701	1.57	3.38	4.09	5.23	0.21	0.77
DY 1	27,8071	107,767	2.45	3.75	4.65	5.29	0.40	1.03
DY 2	36,2162	46,642	2.00	2.59	4.63	4.95	0.52	0.57

DY = demonstration year; ED = emergency department; ENE = eligible but never enrolled; PDY = predemonstration year; SNF = skilled nursing facility.
[1] N includes enrolled months among beneficiaries who enrolled in a Medicare-Medicaid Plan during DY 1.
[2] This number is a subset of DY 1 enrollees.
SOURCE: RTI analysis of South Carolina demonstration eligible Medicare administrative claims and encounter data.

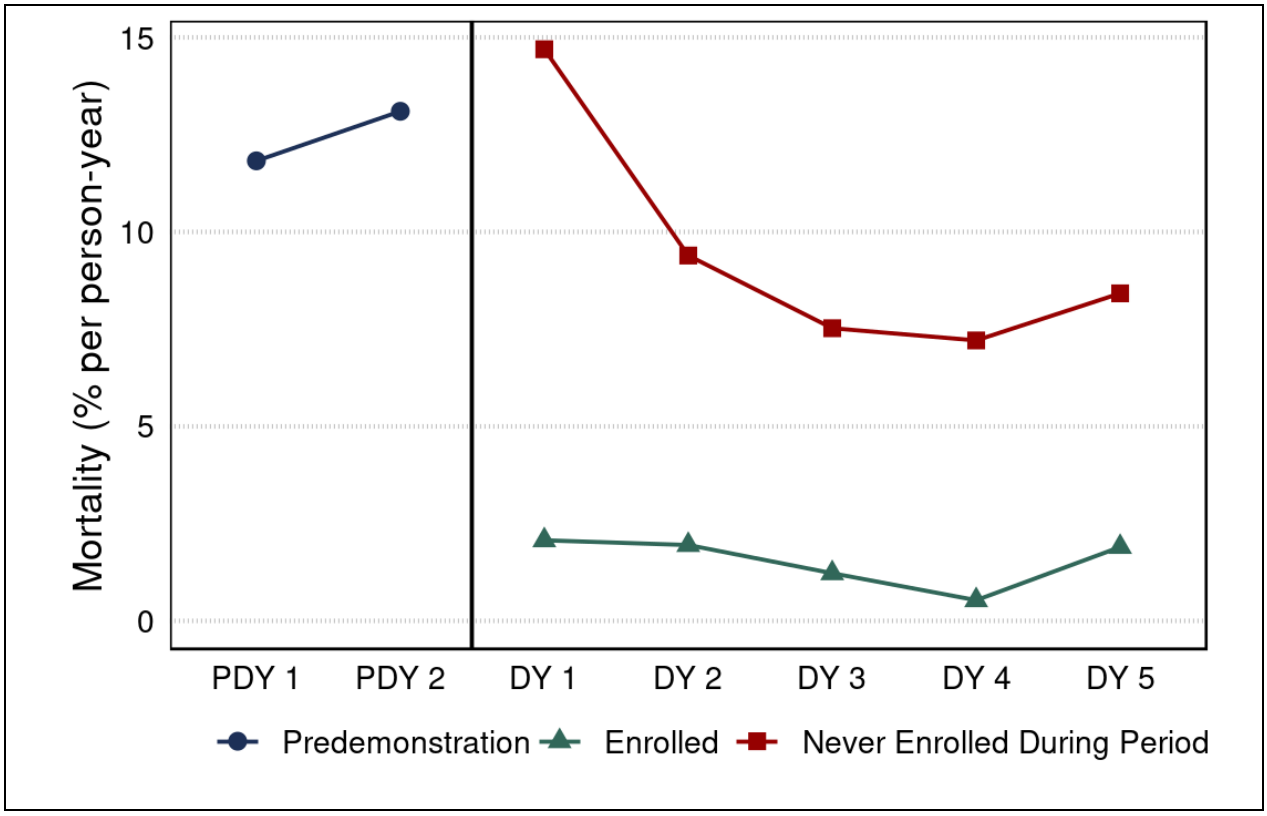
G.1.2 Mortality Analysis

This descriptive analysis examines mortality rates to provide additional insight into differences in health characteristics between enrolled and non-enrolled beneficiaries in the demonstration group. These differences can help understand the DinD results described in ***Section 5, Demonstration Impact on Service Utilization and Quality of Care***. A lower mortality rate observed among the enrolled population, relative to the demonstration eligible but not enrolled population, may indicate that MMPs did a better job at keeping enrollees alive but may also suggest favorable selection into demonstration enrollment and lower the likelihood of observing favorable demonstration effects. Demonstration group eligible beneficiaries are categorized into three groups: predemonstration, enrolled during a demonstration period, and never enrolled during a demonstration period**.** Enrollment categories are based on period-level indicators, so the same beneficiary's observations may be categorized differently over time based on enrollment during a given period. ***Figure G-2*** and ***Table G-2*** show the annualized mortality rate for each group, defined as the number of beneficiaries who died during a given period divided by the number of person-years (months alive divided by 12) during the period.

- Beneficiaries who enrolled in MMPs during the demonstration period have a lower mortality rate than the demonstration eligible non-enrolled during the demonstration period.
- These findings are consistent with the pre-enrollment service utilization analysis (see ***Figure G-1***) findings that suggest favorable selection in the MMPs. Favorable selection may make it less likely to observe favorable demonstration effects because a healthier enrolled population may be less likely to meaningfully benefit from greater care coordination and access to care. Lower mortality during the demonstration period among the enrolled population, compared to the eligible non-enrolled, may

reflect the impact of the demonstration. However, the size of the difference suggests this is an unlikely explanation.

Figure G-2
Mortality rate among enrolled and not enrolled in South Carolina, February 1, 2013–December 31, 2020



PDY = predemonstration year; DY = demonstration year.
NOTES: Mortality rates are not easily interpretable during the first demonstration year due to increased demonstration enrollment through the first demonstration year. Beneficiaries who enroll late in DY 1 are included in the mortality rate's denominator for the entire period, whereas the non-enrolled group does not select for beneficiaries who survive longer. By DY 2, the mortality rate is more comparable between the enrolled and non-enrolled beneficiaries.

Table G-2
Monthly percent of beneficiaries who died during the predemonstration and demonstration periods, South Carolina, February 1, 2013–December 31, 2020

Period	Predemonstration		Demonstration: Enrolled		Demonstration: Eligible not enrolled	
	N	Died (%)	N	Died (%)	N	Died (%)
PDY 1	138,914	11.83	—	—	—	—
PDY 2	132,273	13.10	—	—	—	—
DY 1	—	—	106,081	2.07	155,066	14.70
DY 2	—	—	68,340	1.95	51,746	9.39
DY 3	—	—	75,543	1.22	56,627	7.52
DY 4	—	—	83,797	0.53	65,916	7.21

DY = demonstration year; PDY = predemonstration year; — = not applicable.
NOTE: The N includes the number of alive months during the year among demonstration eligible beneficiaries. Mortality rates are reported as percentages per beneficiary-year.
SOURCE: RTI analysis of Medicare fee-for-service claims and encounter data.

G.2 Cost Savings

The FAI mandated that certain savings percentages be applied to the MMP capitated rates to ensure that the demonstration would result in a decrease in Medicare (and Medicaid) spending. However, our findings from an impact analysis in ***Section 6, Demonstration Impact on Cost Saving*** indicate that the demonstration resulted in an increase relative to the baseline period in Medicare costs among *all* eligible beneficiaries in the demonstration group, relative to the comparison group, cumulatively and from demonstration year 3 to demonstration year 5, despite the application of savings percentages in the capitation rate for MMP enrollees. To better understand these results, we conducted three analyses:

1. We calculated and compared a normalized county-based FFS standardized rate with the actual MMP rate to determine whether the MMP capitated rate was set higher than what would otherwise have been spent in Medicare FFS.[41] Specifically, using observed FFS expenditure data available from CMS, we calculated FFS county rates by taking county-level per capita costs and dividing it by the average risk score for each county.[42] In this way, we obtained a county-level rate for a person whose risk is 1.0 that can be used for comparison with the MMP rate. If the MMP rates were set higher than what would have been observed under FFS, then this would help explain in part why the South Carolina demonstration resulted in increased Medicare costs.

2. We compared the predemonstration spending history among those who enrolled in demonstration year 1 and those who were ENE. If enrolled beneficiaries are less

[41] The analysis is focused on FFS as over 85 percent of the beneficiaries who enrolled were previously in FFS.
[42] FFS Data (2015–2020). Available at: https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/FFS-Data.

expensive than those who never enrolled during the predemonstration period, then this would provide additional evidence of favorable selection into the enrolled group.

3. We compared the predemonstration risk score profiles among those who enrolled in demonstration year 1 and those who were ENE. If enrolled beneficiaries have lower average risk scores than those who never enrolled during the predemonstration period, then this would provide additional evidence of favorable selection into the enrolled group.

G.2.1 Rate-setting comparison

Table G-3 provides an example of how RTI calculated the normalized county rate using observed FFS Parts A and B expenditures for Laurens County, [South Carolina]. First, using observed FFS expenditure data available from CMS, we summed Part A and Part B per capita costs and then we divided the amount by the county-level risk score. [43]

Table G-3
Example of RTI normalized county rate calculations for 2016 (demonstration year 1), Laurens County, South Carolina

County	Part A total per capita[1]	Part B total per capita[1]	Part A + Part B	Risk score[2]	RTI normalized FFS rate
Laurens, SC	343.59	342.86	686.45	0.95036	722.30

FFS = fee-for-service.
[1] FFS16.xlsx file found in the download titled *FFS DATA 2016 (ZIP)* from FFS Data (2015-2021) | CMS.
[2] Medicare FFS County 2022 Web.xlsx files found in the download titled *FFS DATA 2019 (ZIP)* from FFS Data (2015-2021) | CMS.

[43] Note that because the Medicare Part A total per capita costs in the actuary file includes both Part A only beneficiaries and those with both Part A and Part B, we raised the RTI rate by 3 percent to reflect the exclusion of Part A only beneficiaries in managed care (see column C, ***Tables G-4, and G-5***).

Table G-4
Comparison of MMP rates to observed FFS spending, 2016 (demonstration year 1)

County	Enrollment (beneficiary months)[1]	Percent enrollment (of total eligible beneficiary months)[1]	RTI normalized FFS rate	Final MMP rate after application of 1% savings	MMP rate as % of RTI Normalized FFS rate
	A	B	C	D	E
Abbeville	997	1.4%	780.19	938.74	120.3%
Aiken	327	0.5%	720.66	817.58	113.4%
Allendale	331	0.5%	759.34	860.18	113.3%
Anderson	3,147	4.4%	768.17	881.02	114.7%
Bamberg	663	0.9%	754.84	852.84	113.0%
Barnwell	736	1.0%	753.14	928.45	123.3%
Beaufort	944	1.3%	770.67	922.63	119.7%
Berkeley	2,054	2.9%	738.55	870.00	117.8%
Calhoun	321	0.4%	715.94	870.38	121.6%
Charleston	5,258	7.3%	736.37	858.84	116.6%
Cherokee	1,494	2.1%	724.61	805.79	111.2%
Chester	1,156	1.6%	675.08	862.35	127.7%
Chesterfield	1,291	1.8%	654.28	829.62	126.8%
Clarendon	1,151	1.6%	690.18	845.58	122.5%
Colleton	1,100	1.5%	725.05	884.57	122.0%
Dillon	1,197	1.7%	664.89	842.35	126.7%
Dorchester	484	0.7%	744.28	887.31	119.2%
Edgefield	678	0.9%	726.07	872.21	120.1%
Fairfield	1,133	1.6%	701.99	847.56	120.7%
Florence	4,132	5.8%	708.50	860.05	121.4%
Georgetown	1,324	1.8%	723.47	909.91	125.8%
Greenville	7,430	10.4%	683.66	818.06	119.7%
Greenwood	387	0.5%	821.25	938.10	114.2%
Hampton	525	0.7%	744.20	845.66	113.6%
Jasper	373	0.5%	774.73	917.40	118.4%
Kershaw	1,677	2.3%	725.14	858.59	118.4%
Laurens	2,150	3.0%	722.30	887.00	122.8%
Lee	750	1.0%	712.77	869.46	122.0%
Lexington	3,554	5.0%	750.03	853.77	113.8%
Marion	1,348	1.9%	721.94	844.67	117.0%
Marlboro	1,043	1.5%	672.37	809.00	120.3%
McCormick	296	0.4%	778.31	918.45	118.0%

(continued)

Table G-4 (continued)
Comparison of MMP rates to observed FFS spending, 2016 (demonstration year 1)

County	Enrollment (beneficiary months)[1]	Percent enrollment (of total eligible beneficiary months)[1]	RTI normalized FFS rate	Final MMP rate after application of 1% savings	MMP rate as % of RTI Normalized FFS rate
	A	B	C	D	E
Newberry	992	1.4%	728.87	838.62	115.1%
Oconee	1,567	2.2%	699.82	833.01	119.0%
Orangeburg	2,802	3.9%	730.78	828.62	113.4%
Pickens	1,978	2.8%	704.23	836.88	118.8%
Richland	5,575	7.8%	698.59	836.13	119.7%
Saluda	515	0.7%	759.57	817.66	107.6%
Spartanburg	6,486	9.1%	685.38	774.68	113.0%
Union	924	1.3%	693.18	872.99	125.9%
Williamsburg	1,291	1.8%	719.79	891.64	123.9%
Weighted Average [2]	–	–	715.61	846.91	118.4%
Total	71,581	–	–	–	–

DinD = difference-in-differences; FFS = fee-for-service; HCC = hierarchical conditions category; MMP = Medicare-Medicaid Plan. – = not applicable.
NOTE: In 2016 CMS increased the MMP rate to adjust for underprediction in the HCC risk adjustment model for dual eligibles. For South Carolina, the adjustment resulted in a MMP rate increase of approximately 11%. This partially explains the large difference between the RTI standardized and final MMP rates.
[1] As reflected in RTI's DinD impact analysis sample.
[2] Numbers in column A are used as the weights.

Table G-5
Comparison of MMP rates to observed FFS spending, 2020 (demonstration year 5)

County	Enrollment (beneficiary months)[1]	Percent enrollment (of total eligible beneficiary months)[1]	RTI normalized FFS rate	Final MMP rate after application of 3% savings	MMP rate as % of RTI Normalized FFS rate
	A	B	C	D	E
Abbeville	1,529	0.9%	779.53	897.15	115.1%
Aiken	2,287	1.3%	780.23	846.79	108.5%
Allendale	1,009	0.6%	1,028.22	850.94	82.8%
Anderson	7,851	4.6%	816.54	881.83	108.0%
Bamberg	1,519	0.9%	865.21	824.82	95.3%
Barnwell	1,716	1.0%	827.79	840.22	101.5%
Beaufort	3,810	2.2%	848.08	890.50	105.0%
Berkeley	5,800	3.4%	806.37	883.43	109.6%
Calhoun	1,111	0.7%	846.03	902.89	106.7%

(continued)

Table G-5 (continued)
Comparison of MMP rates to observed FFS spending, 2020 (demonstration year 5)

County	Enrollment (beneficiary months)[1]	Percent enrollment (of total eligible beneficiary months)[1]	RTI normalized FFS rate	Final MMP rate after application of 3% savings	MMP rate as % of RTI Normalized FFS rate
	A	B	C	D	E
Charleston	14,668	8.6%	810.66	878.19	108.3%
Cherokee	3,323	1.9%	873.49	815.83	93.4%
Chester	1,875	1.1%	760.53	839.99	110.4%
Chesterfield	2,976	1.7%	751.62	792.26	105.4%
Clarendon	2,633	1.5%	786.32	836.58	106.4%
Colleton	3,167	1.9%	838.27	871.17	103.9%
Dillon	3,041	1.8%	800.69	824.96	103.0%
Dorchester	2,674	1.6%	852.92	884.84	103.7%
Edgefield	1,259	0.7%	884.55	864.42	97.7%
Fairfield	1,878	1.1%	760.57	842.07	110.7%
Florence	9,896	5.8%	791.63	835.68	105.6%
Georgetown	3,819	2.2%	865.62	875.29	101.1%
Greenville	15,384	9.0%	741.17	831.96	112.2%
Greenwood	3,329	1.9%	850.34	897.47	105.5%
Hampton	1,881	1.1%	831.11	872.30	105.0%
Jasper	1,425	0.8%	774.15	879.73	113.6%
Kershaw	3,235	1.9%	770.39	856.53	111.2%
Laurens	3,744	2.2%	790.13	842.86	106.7%
Lee	1,832	1.1%	833.67	836.40	100.3%
Lexington	6,578	3.8%	789.99	871.63	110.3%
Marion	3,255	1.9%	785.22	855.36	108.9%
Marlboro	2,471	1.4%	789.11	752.05	95.3%
McCormick	596	0.3%	836.17	873.44	104.5%
Newberry	1,858	1.1%	801.78	852.69	106.3%
Oconee	3,775	2.2%	746.65	826.44	110.7%
Orangeburg	7,244	4.2%	810.18	832.09	102.7%
Pickens	4,163	2.4%	775.85	848.53	109.4%
Richland	12,541	7.3%	755.91	843.22	111.6%
Saluda	1,049	0.6%	821.65	884.47	107.6%
Spartanburg	13,327	7.8%	822.40	836.77	101.7%
Union	1,680	1.0%	837.67	835.67	99.8%
Williamsburg	3,700	2.2%	776.86	837.18	107.8%
Weighted Average[2]	–	–	799.58	850.78	106.6%
Total	170,908	–	–	–	–

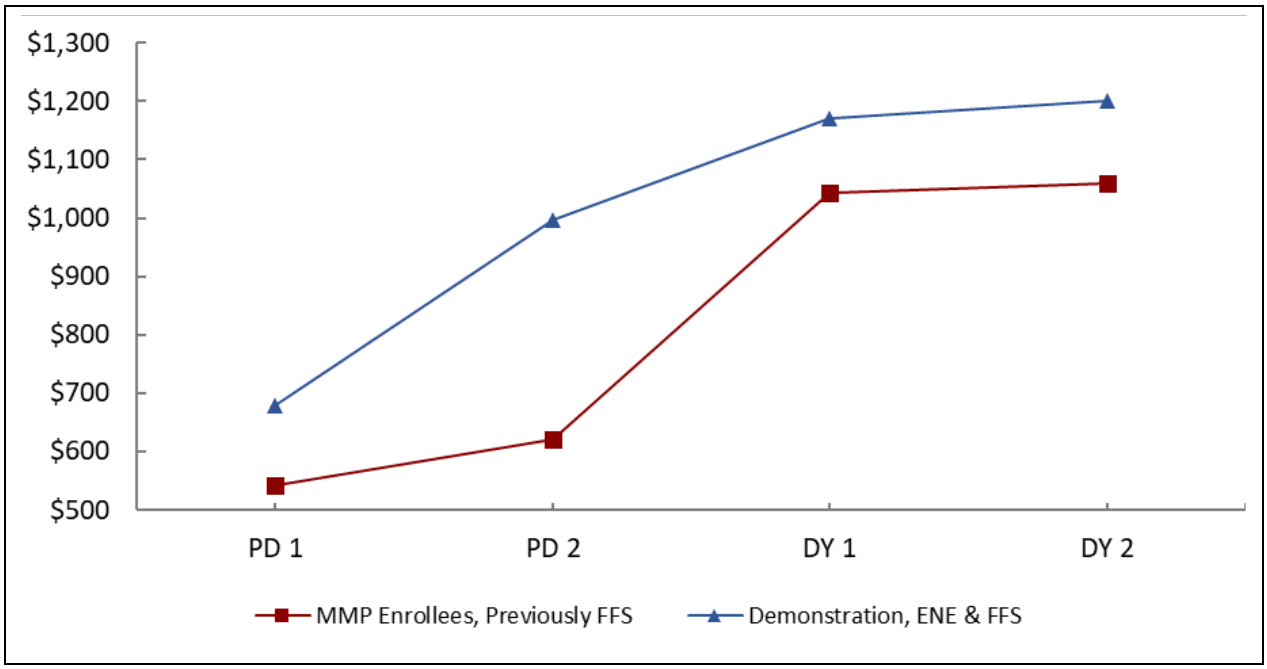
DinD = difference-in-differences; FFS = fee-for-service; MMP = Medicare-Medicaid Plan. – = not applicable.
[1] As reflected in RTI's DinD impact analysis sample.
[2] Numbers in column A are used as the weights.

On a composite basis, the MMP capitation rates are higher than the RTI normalized FFS rate (overall, the weighted average MMP rate is 118.4 percent of the RTI FFS rate in demonstration year 1, and 106.6 percent in demonstration year 5). With few exceptions in some demonstration year 5 counties, all the MMP rates are higher than the RTI normalized FFS (***Tables G-4 and G-5***, column E). These findings indicate MMP rate-setting could contribute to the increased costs in later demonstration years as indicated by the DinD estimates for the demonstration group as a whole. However, the DinD estimates for demonstration year 1 indicate savings, despite having MMP rates that are higher than the estimated FFS rates. This disconnect could be due to low enrollment in demonstration year 1. Also note that the PHE in 2020 could be a contributor to this difference between the RTI normalized FFS rate (which reflects actual 2020 utilization and expenditures) and the MMP rates.

G.2.2 Pre-enrollment Cohort Analysis

Our analysis of predemonstration trends found that FFS beneficiaries with lower predemonstration FFS expenditures were more likely to enroll in an MMP plan. ***Figure G-4*** illustrates that the demonstration year 1 enrolled population was less costly during the predemonstration period than its ENE counterpart. Together with the results of the predemonstration utilization analysis shown in ***Section G.1***, ***Service Utilization Supplemental Analyses***, these findings provide additional evidence of favorable selection into the MMPs at the start of the demonstration; however, favorable selection into the MMPs does not explain the increase in Medicare spending among all demonstration eligible beneficiaries described in ***Section 6, Demonstration Impact on Cost Savings***.

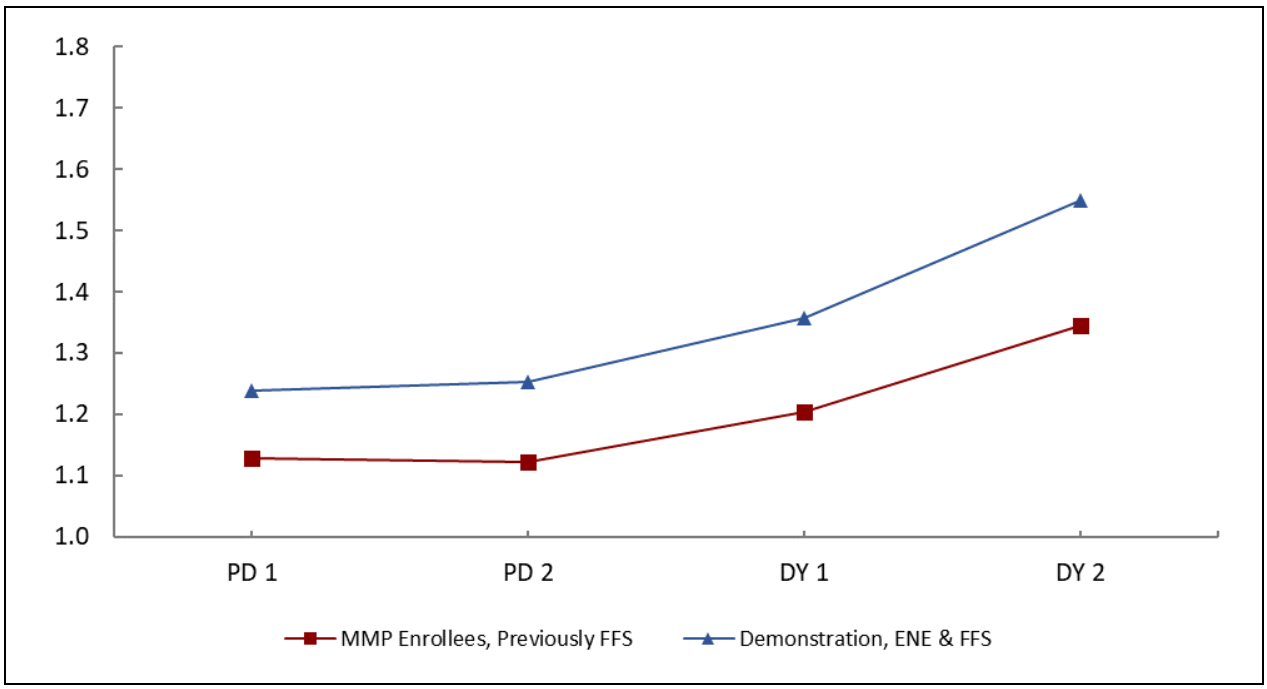
Figure G-4
Average Medicare Parts A and B costs PMPM among demonstration year 1 enrolled and ENE cohorts



DY = demonstration year; ENE= eligible not enrolled; FFS = fee-for-service; MMP = Medicare-Medicaid Plan; PDY = predemonstration year; PMPM = per member per month.
NOTES: The number of observations for DY 2 represents a subset of DY 1 enrollees. PDY 1 is from February 2013 through January 2014; PDY 2 is from February 2014 through January 2015; DY 1 is from February 2015 through December 2016; DY 2 is from January 2017 through December 2017.
SOURCE: RTI analysis of South Carolina pre-enrollment trends.

There are additional factors that may explain our DinD cost savings analysis findings. For instance, more thorough diagnostic coding could raise MMP payments, which could increase average payments faster in the demonstration group relative to the comparison group, although we do not have the data to support this hypothesis. ***Figure G-5*** illustrates that risk scores for the enrollees are lower than the average risk scores of the ENEs, further reinforcing the favorable selection finding from the analyses presented above. Favorable selection can occur for multiple reasons. Plans may purposefully target healthier beneficiaries, and sicker beneficiaries may decide not to enroll in the demonstration. Passive enrollment may have helped alleviate the extent of favorable selection; however, opt-outs and disenrollments from the MMPs were clear concerns highlighted in the Second Evaluation Report.

Figure G-5
Average risk score among demonstration year 1 enrolled and ENE cohorts



DY = demonstration year; ENE= eligible not enrolled; FFS = fee-for-service; MMP = Medicare-Medicaid Plan; PDY = predemonstration year; PMPM = per member per month.
NOTE: PDY 1 is from February 2013 through January 2014; PDY 2 is from February 2014 through January 2015; DY 1 is from February 2015 through December 2016; DY 2 is from January 2017 through December 2017.
SOURCE: RTI analysis of South Carolina pre-enrollment trends.

Finally, although the factors described here are at play for the enrollee population, the FFS eligible but not enrolled beneficiaries are not affected by the savings percentages built into the MMP capitated rates. The analysis of the demonstration's impact on Medicare costs used an ITT approach that included all eligible beneficiaries, not only those enrolled in an MMP, to alleviate concerns about selection bias in enrollment that could not be replicated in the comparison group. Even so, Medicare spending in the demonstration group increased at a faster rate than in the comparison group; unobservable characteristics not accounted for in our analysis may have influenced a different rate of change in Medicare spending in the demonstration group than in the comparison group. Although the supplemental analyses presented here shed light on the favorable selection of relatively healthier and lower-cost beneficiaries in MMP enrollment and help understand why favorable demonstration impacts may be difficult to observe, they do not pinpoint the drivers in Medicare cost increases among eligible beneficiaries in the demonstration group, relative to the comparison group.