BOLD THINKERS DRIVING REAL-WORLD IMPACT

Evaluation of the Accountable Care Organization Investment Model

Final Report • Contract # HHSM-500-2014-00026I / T0004

SUBMITTED TO:

Centers for Medicare & Medicaid Services
CMS/CMMI/RREG/DRPA
David Nyweide
Contracting Officer Representative
7500 Security Blvd.
Baltimore, MD 21244

SUBMITTED BY:
Abt Associates
6130 Executive Boulevard, Rockville, MD 20852

IN PARTNERSHIP WITH:
L&M Policy Research
Insight Policy Research
J. Michael McWilliams

September 2020

The statements contained in this report do not necessarily reflect the views or policies of the Centers for Medicare & Medicaid Services. Abt Associates assumes responsibility for the accuracy and completeness of the information contained in this report.

Authors

Abt Associates
Betty Fout
Matthew Trombley
Ariana Bengtsson
Alan White
Elizabeth Axelrod
Val Aschenbach
Chao Zhou
Lauren Scarpati
Kimberly Groover
Rosanna Bertrand
Jaclyn Rappaport
Catherine Hersey
Johanne Germain

L&M Policy Research
Kathryn Linehan
Heather McPheron
Brant Morefield
Lisa Tomai

Insight Policy Research
Carla Bozzolo
Dominick Esposito

Abt Associates | 6130 Executive Boulevard | Rockville, MD 20852

Table of Contents

List of Exhibits

Executive Summary

The Centers for Medicare & Medicaid Services (CMS) has established a range of alternative payment models to help transform the traditional Medicare program from volume-based to value-based payment for medical care. One of these value-based approaches is Accountable Care Organizations (ACOs). ACOs are entities eligible to receive a portion of the savings they generate if they are able to limit the costs while maintaining or improving quality of care of the population of fee-for-service (FFS) Medicare beneficiaries who predominantly receive care from the ACO's participating clinicians. Transformation of care through ACOs has been occurring unevenly across the nation. To help accelerate care transformation and establish ACOs in more areas of the country, CMS developed the ACO Investment Model (AIM) as part of the Medicare Shared Savings Program (SSP).

ACOs participating in the Shared Savings Program receive a portion of the earned shared savings they generate relative to a benchmark Medicare spending level. AIM provided up-front payments to participating SSP ACOs, which were paid back to CMS through their earned shared savings from the Shared Savings Program. AIM payments assisted SSP ACOs in transforming care by funding infrastructure investments or staffing. Some AIM ACOs participated in the Shared Savings Program prior to AIM and others started their participation in both initiatives simultaneously.

AIM had two main goals: 1) establish new SSP ACOs in geographic areas with few ACOs (referred to as AIM Test 1), and 2) provide existing, smaller ACOs with the resources to sustain participation in the Shared Savings Program and transition from a one-sided to a two-sided financial risk track, wherein they would be liable for paying CMS a percentage of Medicare spending above their benchmark (referred to as AIM Test 2). Four AIM Test 2 ACOs started AIM in April 2015, and 41 AIM Test 1 ACOs and two additional AIM Test 2 ACOs started AIM in January 2016.

CMS contracted with Abt Associates and its partners – L&M Policy Research, Insight Policy Research, and an external ACO expert – to design and conduct an evaluation of AIM. The evaluation examined how the infusion of capital from AIM payments affected operations and outcomes of SSP ACOs participating in AIM. Specifically, the evaluation addressed three main areas of investigation:

- *ACO formation, risk-taking, and sustainability*: The evaluation determined if AIM was successful in achieving its goals of encouraging new ACOs to form in areas with low ACO penetration as well as sustaining existing smaller-sized SSP ACOs' participation and shifting to acceptance of two-sided financial risk.
- *Participant experiences*: The evaluation described who AIM participants were, their reasons for seeking AIM funds, how they used those funds to achieve their care transformation goals, and their perceptions of and experiences with AIM.
- *Impacts on health care*: The evaluation assessed whether AIM impacted the care of beneficiaries attributed to AIM ACOs on a set of health care cost, utilization, and quality measures that address the CMS priorities of better care, healthier people, and smarter spending for Medicare beneficiaries.

Two prior annual reports released in 2018 and 2019 provided findings from the first two AIM performance years through 2017.[1] In this third and final annual report, we present cumulative findings over three performance years through 2018. We assess whether AIM met its overall goals and provide estimates of impacts on health care costs, utilization, and quality of care provided over the three years. The remainder of the report investigates the key drivers of AIM impacts and discusses the complexity of

[1] The evaluation reports of AIM's first and second performance years can be found here: https://innovation.cms.gov/initiatives/ACO-investment-model/

defining an ACO and what it means for evaluating their performance. Lastly, we reflect upon lessons learned from providing advanced funds to ACOs in the Shared Savings Program through AIM and through a prior model, the Advance Payment ACO Model, and offer our final conclusions on the success of AIM.[2] The previous annual report released in 2019 provided in-depth discussion of AIM ACO implementation and participant experiences based on data collected through interviews with ACO leadership and a Web survey. We draw from those findings to provide context and explain results throughout this report.

Key Findings

- Across a variety of metrics, **AIM ACOs were located in areas of the nation with greater health care needs and less access to accountable care.** With AIM, CMS successfully encouraged ACO formation in areas where ACOs may not have otherwise formed and where other Medicare payment and delivery innovations were less likely to be present. Indeed, many AIM ACOs indicated in interviews and surveys with ACO leadership that **AIM funds provided them the ability to form an ACO and join the Shared Savings Program.**
- As of 2020, **14 of the initial 47 AIM ACOs (29.8 percent) remained in the Shared Savings Program**. The majority of exiting ACOs did so at the end of 2018, after their required Shared Savings Program participation period to receive AIM funds concluded. ACOs remaining in the program were larger and served less rural markets. Nine AIM ACOs (19.1 percent) moved to a two-sided financial risk track by 2019; seven of them remained in the program as of 2020.
  - AIM ACO leadership decisions to exit the Shared Savings Program were tied to their **perceived lack of readiness for financial risk-taking.** If given the option, many AIM ACOs would have likely renewed in an upside-only risk track, where they would not be liable for paying back any spending above their benchmark. This likelihood was supported by ACOs in the Advanced Payment (AP) ACO Model, the predecessor model to AIM. After two years of AP funds, 50 percent of the AP ACOs remained in the Shared Savings Program in an upside-only risk track. Two-thirds of the remaining AP ACOs renewed with two-sided risk in 2019.
  - Twenty-nine AIM ACOs exited the Shared Savings Program after 2018, but we found that **more than 60 percent of participating providers of these exiting AIM ACOs joined other SSP ACOs by 2020**.
- We estimated a **net aggregate reduction in spending by Medicare of $381.5M across the three AIM performance years** among AIM Test 1 ACOs after accounting for Medicare's payment of AIM funds and ACOs' earned shared savings.
  - AIM Test 1 ACOs reduced per beneficiary per month (PBPM) total Medicare spending in each of the three AIM performance years. **Estimated reductions were -$28.21 PBPM in PY1 (2016); -$36.94 PBPM in PY2 (2017); and -$38.73 in PY3 (2018).** All estimates were statistically significant at the 5 percent level.
  - The estimated reductions in total Medicare spending were driven by reductions in utilization, most notably **decreases in acute hospitalizations, emergency department visits, and days in skilled nursing facilities.** These reductions were consistent across the performance years.
  - Impacts of AIM Test 2 ACOs on total Medicare spending and utilization relative to non-AIM SSP ACOs in the Shared Savings Program were variable and estimates changed directions during the three performance years.

[2] The final evaluation report of the Advance Payment ACO Model can be found here: https://innovation.cms.gov/initiatives/advance-payment-aco-model/

- AIM ACOs achieved reductions in total Medicare spending without sacrificing quality of patient or caregiver experience and quality of care. We found that **AIM ACOs, even those reducing total Medicare spending, hospitalizations, and emergency department visits, maintained the quality of care provided.**

- AIM Test 1 ACOs were successful in reducing total Medicare spending across several key ACO attributes and **no one factor appeared to be a consistent driver of differential reductions.** There was some suggestive evidence that AIM ACOs with management company affiliations were able to achieve greater reductions sooner; that is, managed AIM ACOs may have reduced Medicare spending more than independent ACOs in 2016 and 2017, but in 2018, independent ACOs reduced Medicare spending by approximately the same amount as managed ACOs.
  - **Beneficiaries who were assigned to the same AIM ACO over multiple years were associated with greater reductions in total Medicare spending** compared to beneficiaries assigned non-continuously, though we could not disentangle whether AIM ACOs were able reduce Medicare spending to a greater extent for continuously assigned beneficiaries or whether lower-cost beneficiaries were more likely to be attributed to the ACO over multiple years.
- We found that **AIM ACOs reduced Medicare Part D prescription drug spending** among assigned beneficiaries enrolled in Medicare Part D compared to non-ACO FFS comparison beneficiaries residing in the AIM ACOs' markets who were also enrolled in Part D. Thus, the estimated reductions in Medicare Part A and B spending were accompanied by decreases in overall Medicare prescription drug spending.
- Despite some turnover in AIM ACO participants across performance years, the characteristics of beneficiaries who would have been assigned had ACO participants remained the same were similar to beneficiaries who were assigned to AIM ACOs in 2018. This finding suggests that on average, **AIM ACO participant changes over time did not result in selection of certain types of beneficiaries**.

Organization of this Report

This report is organized as follows:

- *Introduction to the AIM evaluation*: We introduce AIM and describe key components of our evaluation in **Chapter 1**.
- *AIM ACO formation, risk-taking, and sustainability*: We assess AIM ACO market features and discuss findings on AIM ACO risk-taking and exits from the Shared Savings Program in **Chapter 2**.
- *Impacts of AIM*: We estimate the impact of AIM on Medicare spending, utilization, and quality of care over three performance years in **Chapter 3**.
- *Drivers of AIM impacts*: We investigate drivers of the AIM impacts by estimating differential AIM impacts by key ACO features and examining Medicare spending patterns by AIM ACO beneficiaries in **Chapter 4**.
- *Defining ACOs and implications for evaluation*: We examine the participant composition of an ACO and the implications of AIM ACOs changing their participating providers over time on our evaluation in **Chapter 5**.
- *Lessons learned from the Advanced Payment ACO Model*: We contrast AIM with its predecessor model, the AP ACO Model, and examine AP ACOs' sustainability and risk-taking in **Chapter 6**.
- *Conclusions*: We offer final conclusions on AIM in **Chapter 7**.

1. Introduction to the ACO Investment Model Evaluation

AIM provided up-front and monthly payments to two types of SSP ACOs: new SSP ACOs to encourage formation in low-ACO penetration areas (Test 1) and existing ACOs to encourage their continued participation and assist their transition to a two-sided risk track where they are financially at risk for Medicare spending above their benchmark spending level (Test 2). AIM payments were used to fund staffing, technology, and care transformation activities. The payments were recouped over time from shared savings earned by the ACO while it participated in the Shared Savings Program. In this chapter, we briefly describe the AIM participants and provide an overview of the evaluation design.

1.1. ACO Investment Model Overview

AIM ACOs must participate in and meet the requirements for the Shared Savings Program.[3] ACOs participating in AIM were required to be small (serving fewer than 10,000 beneficiaries) or located in rural or underserved areas (designated by a rurality definition).[4] AIM ACOs also had certain limitations on the types of participating providers: hospital participants needed to be small or designated as a critical access hospital (CAH). Detailed eligibility criteria are outlined in Chapter 1 of the Report on AIM Impacts in the First Performance Year.[5]

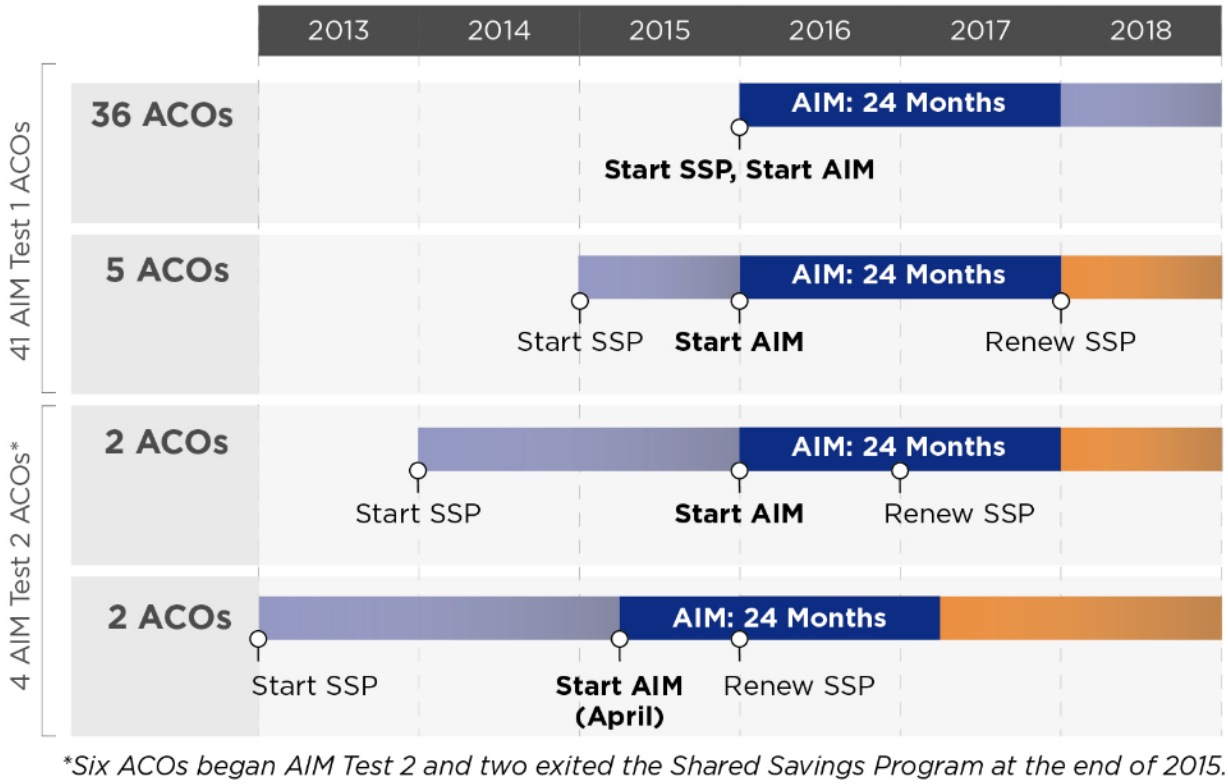
Forty-seven ACOs began AIM on either April 1, 2015 (4 ACOs), or January 1, 2016 (43 ACOs) (see **Exhibit 1-1**). The majority of ACOs (41 ACOs) participated in AIM Test 1, and the remainder (6 ACOs) participated in AIM Test 2. Two AIM Test 2 ACOs exited the Shared Savings Program at the end of 2015. Through the end of 2018, 45 AIM ACOs participated in the Shared Savings Program.

[3] Accountable Care Organization Investment Model (AIM) Request for Applications (https://innovation.cms.gov/Files/x/AIM-RFA.pdf)

[4] ACOs with most providers located in areas with a Rural-Urban Commuting Area (RUCA) codes ≥ 4 were designated as rural.

[5] The evaluation report of AIM's first performance year can be found here: https://innovation.cms.gov/initiatives/ACO-investment-model/

Exhibit 1-1. Most AIM ACOs Concurrently Began the Shared Savings Program and AIM



Note: The light blue and orange colors represent different three-year Shared Savings Program (SSP) participation periods. The dark blue sections labeled "AIM: 24 months" represents the period for which AIM ACOs received per beneficiary per month AIM funds.

Through 2018, Shared Savings Program participation agreements lasted for three years, with the option of renewing for additional three-year periods and accepting either one- or two-sided financial risk arrangements. Most AIM Test 1 ACOs (36 of 41) began AIM and the Shared Savings Program at the same time (see **Exhibit 1-1)**. Five of the 41 AIM Test 1 ACOs joined the Shared Savings Program in 2015, a year prior to AIM. The AIM Test 2 ACOs joined the Shared Savings Program in 2013 or 2014 (with one of the ACOs that exited the program at the end of 2015 having joined in 2012) and started AIM in 2015 or 2016. In 2018, CMS redesigned the Shared Savings Program in final rules referred to as "Pathways to Success" to limit the length of time an ACO could operate under one-sided (or upside-only) financial risk before transitioning to two-sided financial risk and to allow for longer participation agreement periods of at least five years, among other changes.[6]

AIM ACOs received funds both up front as a lump sum and on a monthly basis for 24 months from the start of AIM (the 24-month AIM period is depicted in **Exhibit 1-1**). AIM Test 1 ACOs received AIM funds for the 24-month period starting January 1, 2016 and ending December 31, 2017. Most AIM Test 1 ACOs decided whether to continue Shared Savings Program participation in 2019 after their third year of Shared Savings Program participation, while the AIM Test 2 ACOs renewed their participation during the

[6] For more information on "Pathways to Success," see: https://www.cms.gov/newsroom/press-releases/cms-proposes-pathways-success-overhaul-medicares-aco-program,

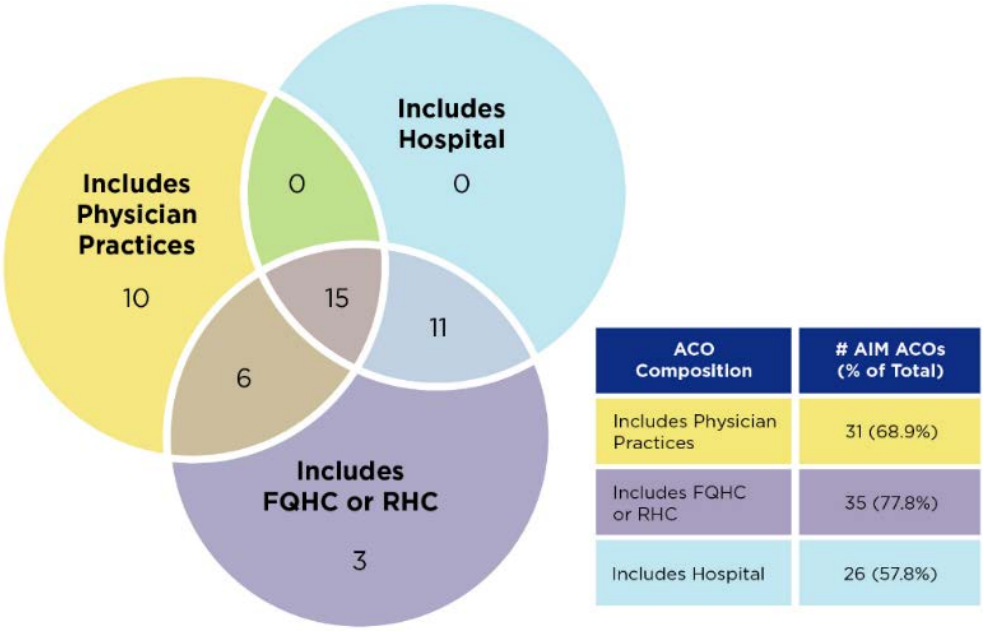
December 2018 Final Rule

CY 2019 Physician Fee Schedule Final Rule

AIM funding period because they were already participating in the Shared Savings Program. **Chapter 2** examines the AIM ACOs' renewal decisions after 2018.

ACO participants: AIM ACOs can be composed of physician practices, federally qualified health centers (FQHCs), rural health clinics (RHCs), or certain types of hospitals (critical access hospitals [CAHs] or other acute hospitals with no more than 100 beds). As shown in **Exhibit 1-2**, some AIM ACOs were composed of only physician practices or only FQHCs and RHCs or included all three types of participants.

Exhibit 1-2. AIM ACO Composition in Performance Year 3



ACO Composition	# AIM ACOs (% of Total)
Includes Physician Practices	31 (68.9%)
Includes FQHC or RHC	35 (77.8%)
Includes Hospital	26 (57.8%)

Note: AIM Performance Year 3 is 2018 for all AIM Test 1 ACOs and two of the four AIM Test 2 ACOs. Performance year 3 is 2017 for the other two AIM Test 2 ACOs. We categorized ACOs as composed of only FQHC and RHCs if greater than 75 percent of total allowed charges for primary care visits were incurred at a federally qualified health center (FQHC) or rural health clinic (RHC), as indicated in the Medicare outpatient claims file for the ACO. Less than 75 percent (but more than zero) allowed charges at an FQHC or RHC would indicate that the ACO includes both physician practices and FQHCs/RHCs. Whether the ACO included a hospital (all hospitals were critical access hospitals [CAHs]) was collected through ACO interviews.
Source: ACO Provider Research Identifiable File and Medicare claims data in 2017 and 2018, and ACO interviews.

Beneficiary assignment: Beneficiary assignment to AIM ACOs was determined by the SSP ACO beneficiary assignment algorithm. Beneficiaries who met certain Medicare coverage and geographic criteria during the assignment window could be assigned to an ACO depending upon the participant(s) from whom they received primary care services. An eligible beneficiary receiving the plurality of his or her primary care services from an ACO would be assigned to that ACO for that year. Data sources used in determining assignment are described in **Appendix 1A**, and a further description of the Shared Savings Program assignment algorithm and our application of the algorithm are provided in **Appendix 1B**.

AIM funds: AIM Test 1 provided start-up financial support to ACOs that began their first Shared Savings Program agreement period in 2015 or 2016. Participating organizations received an up-front fixed payment of $250,000, an up-front variable payment of $36 for each assigned beneficiary (up to 10,000 beneficiaries), and a monthly payment of $8 for each assigned beneficiary (up to 10,000 beneficiaries) for 24 months. AIM Test 2 offered financial support to ACOs that began their Shared Savings Program agreement period in April 2012, July 2012, January 2013, or January 2014. Participating organizations received the same up-front variable payment of $36 for each assigned

beneficiary, a smaller monthly payment of $6 for each assigned beneficiary for 24 months, and no up-front fixed payment. AIM payments for Test 1 and Test 2 ACOs are summarized in **Exhibit 1-3**.

Exhibit 1-3. AIM ACOs Receive Up-Front and Ongoing Payments for 24 Months

AIM	Eligibility	Up front	Monthly
Test 1	New ACOs (2015, 2016)	$250,000 + $36 per beneficiary	$8 per beneficiary per month
Test 2	Existing ACOs (2012, 2013, 2014)	$36 per beneficiary	$6 per beneficiary per month

Note: The monthly per beneficiary payment was capped at 10,000 assigned beneficiaries.
Source: AIM Request for Applications (https://innovation.cms.gov/Files/x/AIM-RFA.pdf).

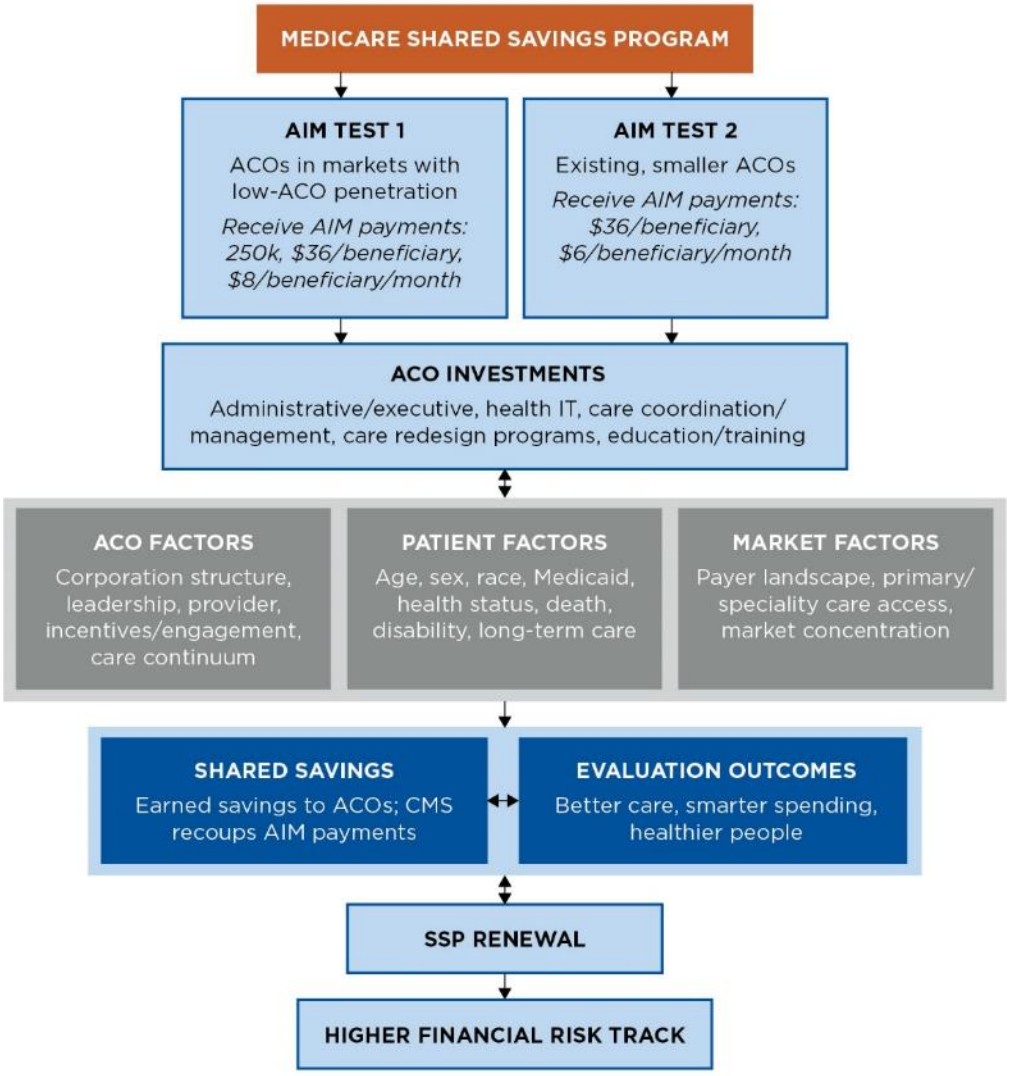
AIM payments were recouped by CMS from shared savings earned by AIM ACOs. Although AIM funds were only distributed over 24 months, they could be recouped for up to two Shared Savings Program participation agreement periods if the ACO decided to renew its agreement. AIM Test 2 ACOs were required to repay their AIM payments if they were not recouped before the end of their participation agreement; therefore, they needed to have financial guarantees to participate in AIM. AIM Test 1 ACOs that did not generate enough shared savings for CMS to recoup their AIM payments by the end of their first or second participation agreement would have the remaining balance forgiven if the ACO did not renew to start a third participation agreement.

Risk track: All AIM ACOs began AIM in an upside-only financial risk track, whereby ACOs shared in earned savings but did not need to pay any portion of losses. Particularly for AIM Test 2 ACOs, a goal of AIM was to encourage greater participation in higher financial risk tracks so that ACOs were responsible for a portion of losses (and share in a greater proportion of savings). In 2017, one of two AIM Test 2 ACOs eligible for renewal, Sunshine ACO, did transition to a two-sided financial track, as did one additional AIM Test 2 ACO and one AIM Test 1 ACO in 2018. Six additional ACOs that received AIM funding transitioned to two-sided financial risk in 2019, and no additional ACOs that received AIM funding made the transition in 2020.

1.2. AIM Evaluation Overview

The AIM evaluation was shaped by a conceptual framework of how AIM funds can be invested by the ACO to reach the goals of shared savings, Shared Savings Program renewal (potentially with a higher financial risk track), and ultimately, better care, smarter spending, and healthier people (**Exhibit 1-4**).

Exhibit 1-4. AIM Conceptual Framework for Achieving Better Care, Smarter Spending, and Healthier People



Source: Developed by the AIM evaluation team.

1.2.1 Data Collection and Model Implementation

Understanding AIM ACOs' operations and the decision-making and responses to their experiences by ACO leadership was key to the AIM evaluation. To gather information on the use of AIM funds, perspectives on the model, and plans for renewing their Shared Savings Program participation and moving to two-sided financial risk, we conducted two rounds of interviews with ACO representatives, interviews with physicians from a subset of AIM ACOs, Web surveys with ACO representatives, and an interview with the CMMI AIM model leads (**Exhibit 1-5**). Details on the data collections that supported the AIM evaluation are described in **Appendix 1A**. Throughout this report, we provide insights gathered from the interviews and survey. An in-depth discussion of AIM ACO implementation and experiences of ACO leadership can be found in the Report on AIM Impacts in the Second Performance Year, 2019.[7]

[7] The evaluation report of AIM's second performance year can be found here: https://innovation.cms.gov/initiatives/ACO-investment-model/

Exhibit 1-5. Primary Data Collection for Understanding AIM Implementation

1.2.2 Impact Evaluation Key Design Features

Comparison groups

The construction of robust comparison groups was essential to the quasi-experimental research design we used to evaluate AIM impacts. By comparing changes in outcomes from before AIM began to after AIM began among AIM ACOs to changes in outcomes over the same period for the ACOs' comparison groups, we measured which changes were attributable to AIM rather than external factors. We used two main types of comparison groups to address different AIM impacts (see **Chapter 3** for additional detail and our findings):

- **Non-ACO FFS market comparison group:** Beneficiaries who were eligible for assignment to an SSP ACO but not attributed to any Medicare ACO comprised a comparison group of eligible FFS Medicare beneficiaries located within each ACO's market.[8] This group is relevant for 41 AIM Test 1 ACOs that may not have joined the Shared Savings Program in the absence of AIM. Impacts estimated with this group measure the overall effect of AIM ACOs in relation to a hypothetical world with no Medicare ACOs. The use of market-delineated comparison groups ensures that comparison beneficiaries face the same market forces as beneficiaries assigned to AIM ACOs, such as the availability of different types of care (e.g., post-acute care or hospice care), availability of other payers, participant characteristics, and the general market environment. Moreover, local comparison groups control for geographic differences in Medicare reimbursement rates and for any changes in unobservable factors causing market-wide changes in spending or quality.
- **Non-AIM SSP ACO comparison group:** A second comparison approach involves comparing AIM ACOs to other ACOs in the Shared Savings Program to understand the effect of AIM funds over Shared Savings Program participation. In 2018, there were 548 non-AIM ACOs in the Shared Savings Program. We selected non-AIM SSP ACOs that were similar to AIM ACOs, defined as those ACOs starting the Shared Savings Program in the same cohort year, initially participating in Track 1 (upside-only financial risk), not participating in the Advance Payment (AP) ACO Model, and of similar size in terms of number of assigned beneficiaries. In addition, we applied further weighting and risk adjustment to better balance the characteristics of non-AIM SSP ACOs and AIM ACOs.

[8] We define markets based on Primary Care Service Areas (PCSAs) where each AIM ACO's assigned beneficiaries reside. PCSAs delineate discrete geographic areas where residents generally seek primary care from the same providers, defined using Medicare claims data. There are 6,542 PCSAs nationwide. These relatively small geographic areas, defined based on the use of primary care resources, are well suited for delineating ACO markets.

Analyses using this comparison group were intended to better understand the effect of AIM payments apart from the effect of participating in the Shared Savings Program. This comparison was appropriate for exploring the effect of AIM Test 2 ACOs that existed prior to joining AIM as well as comparisons of Shared Savings Program quality measures that were only available at the ACO-level. We also used this comparison group to contrast AIM Test 1 impacts to those of similar non-AIM SSP ACOs to provide further context for AIM impact findings.

Despite our efforts to enhance the comparability of AIM and non-AIM SSP ACOs, it is important to note that the ACOs differed in ways that cannot be fully observed or accounted for and resulting differences should be interpreted cautiously.

Performance and baseline years

For most AIM ACOs, the three performance years (PY1, PY2, and PY3) of this evaluation were 2016, 2017, and 2018 (see **Exhibit 1-6**). For four AIM Test 2 ACOs, the three performance years were 2015, 2016, and 2017. Thus, unless otherwise noted, performance years PY1, PY2, and PY3 in this report refer to the first, second, and third year of SSP participation after the start of AIM, regardless of the calendar year. Our evaluation includes PY3, when the AIM ACOs did not receive any AIM funds; however, AIM ACOs could continue to spend any remaining funds up to 12 months after the last payment. Two AIM ACOs exited the Shared Savings Program at the end of 2015 and did not participate in PY2 or PY3. They were included in PY1 analyses unless otherwise indicated.

To capture trends pre-dating the beginning of AIM, two or three baseline years were used, depending on participation in AIM Test 1 or 2 (**Exhibit 1-6**). For AIM Test 1 ACOs, the baseline years included FFS beneficiaries who would have been assigned to ACO participants from the performance year in each of three years preceding the start of AIM. This approach was done separately for each performance year—thus, for PY3, the baseline is composed of beneficiaries assigned in PY3 using the ACO participants in PY3 (see **Appendix 1B** for additional discussion on assignment during the baseline). Since AIM Test 2 ACOs existed before AIM began, their two baseline years included FFS beneficiaries actually assigned to each ACO prior to participation in AIM. Comparison groups in baseline years were analogously constructed as in a performance year for each AIM ACO.

Exhibit 1-6. AIM Evaluation Performance and Baseline Years

	Baseline	PY1	PY2	PY3
AIM Test 1 ACOs (41 ACOs)	2013-2015	2016	2017	2018
AIM Test 2 ACOs (6 ACOs)				
Physicians Collaborative Trust of Mississippi Gulf Coast*	2013-2014	2015	-	-
Baroma Healthcare International*	2013-2014	2015	-	-
The Premier Healthcare Network	2013-2014	2015	2016	2017
Akira Health	2013-2014	2015	2016	2017
Sunshine ACO	2014-2015	2016	2017	2018
PremierMD ACO	2014-2015	2016	2017	2018

*Exited the Shared Savings Program at the end of 2015

1.2.3 Performance Measures

To assess AIM impacts, we examined the measures listed in **Exhibit 1-7**. We drew these measures from the quality measures that SSP ACOs are required to report and key claims-based measures. We grouped measures into Medicare spending, utilization, and quality of care measures. Detailed specifications for each measure are provided in **Appendix 1C**.

Exhibit 1-7. AIM Evaluation Performance Measures

Measure Domains	Measure Descriptions	Data Sources
Medicare spending (per beneficiary per month)	• Total Parts A and B • Acute inpatient • Physician services • Hospital outpatient + ambulatory surgery centers • Skilled nursing facility (SNF) • Home health • Durable medical equipment (DME) • Part D prescription drug	• Medicare claims, Part D prescription drug
Utilization	Inpatient • Acute inpatient stays • Any inpatient hospitalization • All-cause 30-day readmission • Any ambulatory care sensitive condition (ACSC) admission Emergency department (ED) and observation • Any ED visits, without hospital admission • Any ED visits with hospital admission • Outpatient observation stays Post-acute care and hospice • SNF days • Any hospice Physician services • Office-based evaluation and management (E&M) visits • Berenson-Eggers Type of Service (BETOS) imaging • BETOS procedures • BETOS tests	• Medicare claims
Mortality	• Mortality rate	• Medicare enrollment data
Quality measures: patient or caregiver experience	• Getting Timely Care, Appointments, and Information • How Well Your Doctors Communicate • Patients' Rating of Doctor • Access to Specialists • Health Promotion and Education • Shared Decision Making	• Beneficiary-level ACO and PQRS/MIPS CAHPS data
Quality measures: preventive health	• Depression screening • Colorectal cancer screening • Mammography screening	• ACO quality measures from Shared Savings Program Public Use Files
Quality measures: at-risk populations	• Diabetes poor control • Hypertension (blood pressure control) • Ischemic vascular disease control	• ACO quality measures from Shared Savings Program Public Use Files

Note: CAHPS = Consumer Assessment of Healthcare Providers and Systems; PQRS = Physician Quality Reporting System; MIPS = Merit-based Incentive Payment System

We assessed AIM impacts on measures in different ways depending on their availability in populations of interest. Claims-based measures and mortality could be calculated for all Medicare beneficiaries during the performance and baseline years and thus were used in beneficiary-level analyses for estimating the impact of AIM ACOs. Patient or caregiver experience measures were available at the beneficiary-level during the performance period and were used for comparing ACO and comparison beneficiaries during the performance years. Preventive health and at-risk population measures were assessed at the ACO level for AIM ACOs in this report and those analyses are more descriptive in nature. Details on data sources are provided in **Appendix 1A**.

2. Did AIM Meet Goals Related to Formation, Risk-taking, and Sustainability?

A key goal of AIM was to encourage ACOs to form in rural areas and regions with low ACO penetration to promote the provision of value-based care to Medicare beneficiaries residing in these areas. Providers in these areas may have lacked the access to capital needed to build infrastructure for population care management. AIM funds were an opportunity for providers in these areas to invest in care transformation activities. CMS also provided AIM funds to eligible existing ACOs with a goal of sustaining their participation in the Shared Savings Program and encouraging two-sided financial risk-taking.

In this chapter, we assess whether AIM achieved these goals by exploring the geographic characteristics of AIM ACOs' locations and reporting AIM ACOs' risk-taking and exit rates. For some analyses, we compare AIM ACOs to similar non-AIM SSP ACOs. We also draw from information collected through different rounds of interviews and a Web survey to understand ACOs' reasons for participation in AIM and the Shared Savings Program and their perspectives on renewal and risk-taking (see **Appendix 1A** for a description of the evaluation's data sources).

Key findings on AIM formation, risk-taking, and sustainability include:

- AIM ACOs were located in areas of the nation with greater health care needs and less access to accountable care. Compared with beneficiaries located in markets served by other non-AIM ACOs in the Shared Savings Program, AIM ACO markets were less likely to overlap with other Medicare initiatives, and, across all metrics of health vulnerability, AIM ACOs served beneficiaries with more unmet needs
- Fourteen of the 47 ACOs (29.8 percent) that began AIM remained in the Shared Savings Program or renewed under new program rules called Pathways to Success by 2020. The majority of the exiting ACOs did so at the end of 2018, after their Shared Savings Program participation period ended. AIM ACOs that renewed or remained in the Shared Savings Program were larger, served less rural markets, and were less likely to be affiliated with a management company. AIM ACOs that renewed in the Shared Savings Program under Pathways to Success were more likely to have earned shared savings prior to 2019.
- AIM ACOs' noted that their decisions to exit the Shared Savings Program were tied to their perceived lack of readiness for risk-taking and need for more time in a one-sided financial risk track. Additionally, small ACOs felt they would be unable to absorb losses that are possible under two-sided financial risk-taking. AIM ACOs had previously indicated plans to renew participation in the Shared Savings Program in an upside-only financial risk track but were hesitant to renew in Pathways to Success, which requires less time to transition to two-sided financial risk-taking.
    - Many of the exiting AIM ACOs' participating providers chose to join a different ACO (new or existing) in the Shared Savings Program after 2018. Twenty-nine AIM ACOs exited the Shared Savings Program after 2018, and we found that 62.3 percent of the participants of these exiting AIM ACOs remained in the Shared Savings Program by joining another SSP ACOs by 2020.
- Twenty AIM ACOs fully repaid their AIM funds. This number included the six AIM Test 2 ACOs that were required to return funds even if they did not earn enough shared savings for CMS to recoup them. An additional eight ACOs partially paid back their AIM funds. As of the end of 2018, $52,105,932 (54.2 percent) of AIM funds were recouped. Of the remaining AIM payments, 70.1 percent were owed by AIM ACOs that exited the Shared Savings Program by 2020 and thus

is not eligible to be recouped by CMS.[9] The remaining 29.9 percent of unrecouped funds are outstanding AIM payments owed by AIM ACOs that remained in the program and may be recouped in later years.

2.1. Data and Methods

Our analytic approaches to studying AIM formation, risk-taking, and sustainability are described in this section. We draw from multiple secondary and primary data sources, which are described in detail in **Appendix 1A.**

Two of the 47 AIM ACOs exited the Shared Savings Program before the end of 2015. For participation percentages and in other analyses, where possible, we used the 47 total AIM ACOs. In some analyses, we used only the 45 AIM ACOs that remained through the end of 2018 since data availability for the two exiting ACOs was limited.

ACO formation: We examined the characteristics of AIM ACO markets. To construct an ACO market, we identified the Primary Care Service Areas (PCSAs) in which the ACO's assigned beneficiaries reside.[10] We examined ACO markets in two ways:

- *Overlap of other Medicare initiatives*: We identified beneficiaries attributed to other Center for Medicare & Medicaid Innovation (CMMI) initiatives with similar goals of transforming Medicare FFS health care through payment and delivery innovations.[11] ACO markets with greater overlap with other CMMI initiatives may differ from other markets; for example, providers may be more accepting of change or accustomed to care coordination and better patient care management. In addition, this difference might affect the comparison group, as non-ACO beneficiaries may be participating in other initiatives focused on the same outcomes. **Exhibit 2-1** shows the CMMI initiatives we considered for ACO market overlap. Beneficiaries in these initiatives could be identified through the Master Data Management (MDM) database or through programmatic data received from CMS.
- *AIM ACO market-level characteristics*: We selected market characteristics that described the health needs of the residents. These include measures of rurality and Health Professional Shortage Area (HPSA) indicators, among others listed and defined in **Exhibit 2-2**. We also examined Medicare Advantage (MA) penetration rates; higher MA penetration rates might be indicative of markets that are more experienced with care coordination and care management needed under capitation reimbursement. Finally, we created and explored a metric of "contiguity" that indicates whether the ACO service areas were centralized or diffused across geographic regions. ACOs with proximate providers may better communicate, share patient information, and coordinate care.

---

9 The financial reconciliation for 2019 is not yet available, and we do not know if the two AIM ACOs that exited the Shared Savings Program at the end of 2019 earned shared savings and paid back some AIM funds before exiting.

10 PCSAs delineate discrete geographic areas where residents generally seek primary care from the same providers, defined using Medicare claims data. There are 6,542 PCSAs nationwide. These relatively small geographic areas, defined based on the use of primary care resources, are well suited for delineating ACO markets. We did not draw comparison beneficiaries from PCSAs with less than 0.5 percent of the ACO's total assigned beneficiaries.

11 https://innovation.cms.gov/

Exhibit 2-1. CMMI Initiatives Assessed for Overlap with AIM ACO Markets

Medicare Initiative	Description	Source
The Shared Savings Program	We examined the overlap between AIM ACO markets and beneficiaries assigned to non-AIM SSP ACOs. In 2018, there were 503 non-AIM ACOs in the Shared Savings Program.	MDM
Pioneer ACO Model	The Pioneer ACO Model targeted health care organizations and providers experienced in care coordination with a goal of moving to a population-based type of payment model. Pioneer ACOs began in 2012 and ended on December 31, 2016. At the conclusion of the program, there were 9 ACOs in the model.	MDM
Next Generation ACO Model	This model targeted experienced ACOs that were able to participate in higher levels of financial risk and reward and test certain benefit enhancements, including population-based payments. The Next Generation ACO Model began on January 1, 2016 and had 41 NextGen ACOs in 2018. In 2017, there were 1.2 million Medicare FFS beneficiaries attributed to ACOs in the model.	MDM
Comprehensive End-Stage Renal Disease (ESRD) Care (CEC) Model	The CEC Model is an ACO-type model targeting providers who care for Medicare beneficiaries with ESRD. Providers such as dialysis clinics and nephrologists join together to create ESRD Seamless Care Organizations (ESCOs), which are similar to ACOs in the Shared Savings Program. The model began on September 1, 2015, and currently has 33 participants. In 2017, there were approximately 40,000 Medicare FFS beneficiaries attributed to ESCOs.	MDM
Comprehensive Primary Care (CPC) Initiative, Classic and Plus	The CPC initiative was designed to strengthen primary care. CPC Classic first began in October 2012 and CPC+ began in 2017. In 2017, 2.2 million Medicare FFS beneficiaries were attributed to CPC+ practices. AIM ACO participants cannot participate in CPC, but non-AIM SSP ACOs participants may also join CPC.	MDM
Bundled Payments for Care Improvement (BPCI) Initiative	BPCI is an episode-based payment initiative that links payments of medical services received during an episode of care. BPCI Classic, implemented through four models, began in April 2013 and ended on September 30, 2018, BPCI Advanced began on October 1, 2018. CMS provided data on beneficiaries in BPCI Classic Models 2 and 3 and BPCI Advanced. We used episodes of care that occurred between January 1, 2016, and December 31, 2018.	CMS-provided
Comprehensive Joint Replacement (CJR)	CJR is an episode-based payment initiative that targets beneficiaries with hip and knee replacements. Data includes episodes of care from April 1, 2016, to December 31, 2018.	CMS-provided
Oncology Care Model (OCM)	OCM is an episode-based payment initiative for physician practices that administer chemotherapy. Data provided includes episodes of care that occurred between July 1, 2016, and December 31, 2018.	CMS-provided

Note: MDM = Master Data Management; see Appendix 1A for the files provided by CMS.

Exhibit 2-2. Marketplace Characteristics Used to Describe AIM ACO Markets

Marketplace Characteristic	Description	Source
Rurality	Rural Urban Commuting Area (RUCA) codes are used to measure the rurality of the market served by AIM and similar, non-AIM SSP ACOs. To define rurality, we mapped the RUCA codes at the ZIP Code level to the residence of ACO beneficiaries and determined the percentage of beneficiaries residing in a location with a RUCA code equal to or greater than 4 on a scale of 1 to 10, with 10 indicating most rural.[a]	University of North Dakota's Center for Rural Health
Health Professional Shortage Area (HPSA)	HPSAs refer to geographic areas that lack sufficient health care providers to meet the population's needs.[b] An area that receives a HPSA designation from the Health Resources and Services Administration (HRSA) receives additional resources to improve access to primary, mental, or dental care. We mapped HPSA indicators to the residences of ACO beneficiaries to obtain the percentage of beneficiaries that were located in a HPSA-designated area for each corresponding year.	HRSA
Area Deprivation Index (ADI)	Disparities in health and socioeconomic status are closely related. The ADI is a measure of socioeconomic status disadvantage developed using income, education, employment, and housing quality measures from the American Community Survey Five Year Estimates.[c] A high ADI indicates areas at a greater socioeconomic disadvantage. We mapped ZIP code-level ADIs to the residence of ACO beneficiaries to determine average ADI rankings in these markets.	HIPxChange affiliated with the University of Wisconsin
ACO favorability score	Marketplace characteristics differ by region and give rise to varying market conditions that may be more or less favorable to ACO formation. We identified marketplace characteristics that relate to ACO formation and sustainability, including measures of health care resource use, demographic and health characteristics, health care quality, health care access, and market structure. We then ranked markets on a scale of 0 to 100 as favorable or unfavorable to ACO formation based on these measures. Higher scores correspond to markets that are more favorable to ACO formation and sustainability. The geographic level for analysis was the hospital referral region (HRR). We mapped HRR-level scores to ACO beneficiaries' residence and calculated the average favorability score for ACO market areas.[d]	AIM evaluation team
Medicare Advantage (MA) penetration	MA plans are offered by private insurers that contract with Medicare to provide health insurance to Medicare beneficiaries. MA penetration rates are the number of Medicare beneficiaries enrolled in MA plans divided by the total number of Medicare beneficiaries. MA penetration rates were mapped to ACO beneficiaries' ZIP codes to calculate average rates in ACO markets.	Medicare enrollment database
ACO county contiguity	Contiguity assignment is an indicator for whether counties where ACO beneficiaries reside border each other. We mapped beneficiaries' residences at the ZIP code level to counties. We then constructed a data set of counties and their neighboring counties to identify ACOs with beneficiaries residing in bordering counties. We dropped counties that contained less than 0.5% of beneficiaries assigned to the ACO. After these exclusions, we defined ACOs as contiguous if all of their beneficiaries lived in bordering counties.[e]	Medicare enrollment data

[a] Specifically, a RUCA score of four indicates an area that is a "Micropolitan area core: primary flow within an Urban Cluster of 10,000 to 49,999." See Appendix 1A for more detail on RUCA code data sources.
[b] https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/HPSAfctsht.pdf
[c] https://www.neighborhoodatlas.medicine.wisc.edu/
[d] More detail on our approach to developing these scores, including complete lists of the variables and data sources used, is provided in AIM Impacts in the First Performance Year report.
[e] We used counties to measure ACO contiguity instead of Primary Care Service Areas (PCSAs), which were the geographic unit used to define AIM ACOs markets throughout this report, because PCSAs are small geographic units and requiring neighboring PCSAs to define contiguity could understate ACO contiguity.

Shared Savings Program Participation and Financial Risk-Taking: We examined the participation rates and financial risk-taking decisions of AIM ACOs through 2020. We used public use files on Shared Savings Program participation and CMS-provided programmatic data to identify ACOs that exited the program and their financial risk decisions over time (see **Appendix 1A**). For some analyses with AIM Test 1 ACOs, we compared AIM ACOs to a set of similar ACOs in the Shared Savings Program that did not participate in AIM using the following criteria:

- Started the Shared Savings Program in the same year as the AIM ACO
- Participated in Track 1 (no downside financial risk)
- Did not participate in the AP model
- Were smaller in size: we selected non-AIM SSP ACOs with fewer than 15,000 assigned beneficiaries in the year of Shared Savings Program participation to approximate the size category of AIM ACOs

We examined whether AIM ACOs' participants were affiliated with another SSP ACO in 2020, particularly for AIM ACOs that did not renew in the Shared Savings Program after 2018. We calculated the amounts of 2018 allowed charges for primary care visits (as a proxy for participants' sizes) and counts of ACO participants (defined by Tax Identification Numbers [TINs]) that moved to other SSP ACOs versus becoming completely unaffiliated with the Shared Savings Program in 2020.

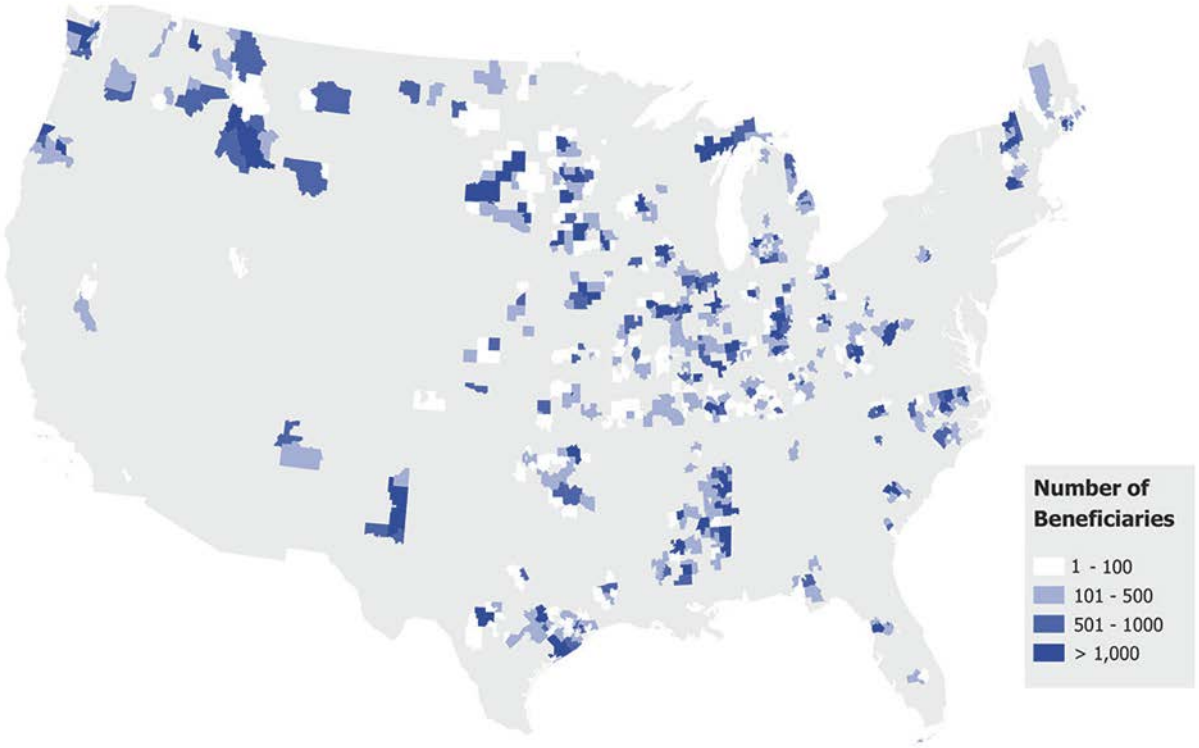
2.2. AIM ACO Formation

2.2.1 AIM ACOs were located in underserved markets

AIM Test 1 ACOs were located across 36 states (plus Guam) in 2018 (**Exhibit 2-3**). This was relatively stable throughout the three performance years, though AIM ACO markets, defined by the location of beneficiaries assigned to the AIM ACOs, could change year-to-year depending on the locations of their participating providers and the beneficiaries assigned to them.[12]

[12] ACO markets are defined as the primary care service areas (PCSAs) for which at least 0.5 percent of the ACO's attributed beneficiaries reside.

Exhibit 2-3. AIM ACO Geographic Locations in 2018



Notes: Shows primary care service areas (PCSAs) in which AIM ACOs' assigned beneficiaries resided. We included PCSAs for which at least 0.5 percent of an ACO's attributed beneficiaries reside. There was one AIM ACO with providers and assigned beneficiaries located in Guam, which is not shown in the map.
Source: ACO Provider Research Identifiable File and Medicare claims and enrollment data, 2018.

AIM ACOs tended to locate in more underserved areas compared to other ACOs in the Shared Savings Program across all the marketplace characteristics we examined (**Exhibit 2-4**). The rurality of AIM ACOs decreased slightly over time from 75.9 percent in 2016 to 70.2 percent in 2018 but remained substantially higher than similar non-AIM SSP ACOs (24.1 percent in 2016 and 27.0 percent in 2018). The Primary Care Health Professional Shortage Area (HPSA) indicators were higher for AIM ACOs compared to similar non-AIM SSP ACOs. The Area Deprivation Index (ADI) was higher (more disadvantaged) in AIM ACO markets (60.6 in 2018) compared to non-AIM SSP ACO markets (52.8 in 2018). The ACO favorability index followed the same pattern of non-AIM SSP ACOs locating in areas that were more favorable to ACO formation compared to AIM ACOs.

We also found lower rates of MA penetration among the AIM ACO markets compared to similar non-AIM SSP ACO markets (in 2018, 24.6 percent for AIM ACO markets compared to 31.6 percent in non-AIM markets), as shown in **Exhibit 2-4**. Lastly, we found that non-AIM SSP ACOs were more likely to be centralized compared to AIM ACOs. In 2018 only 31.7 percent of AIM ACOs could be defined as contiguous while 77.1 percent of non-AIM SSP ACOs were defined as contiguous.

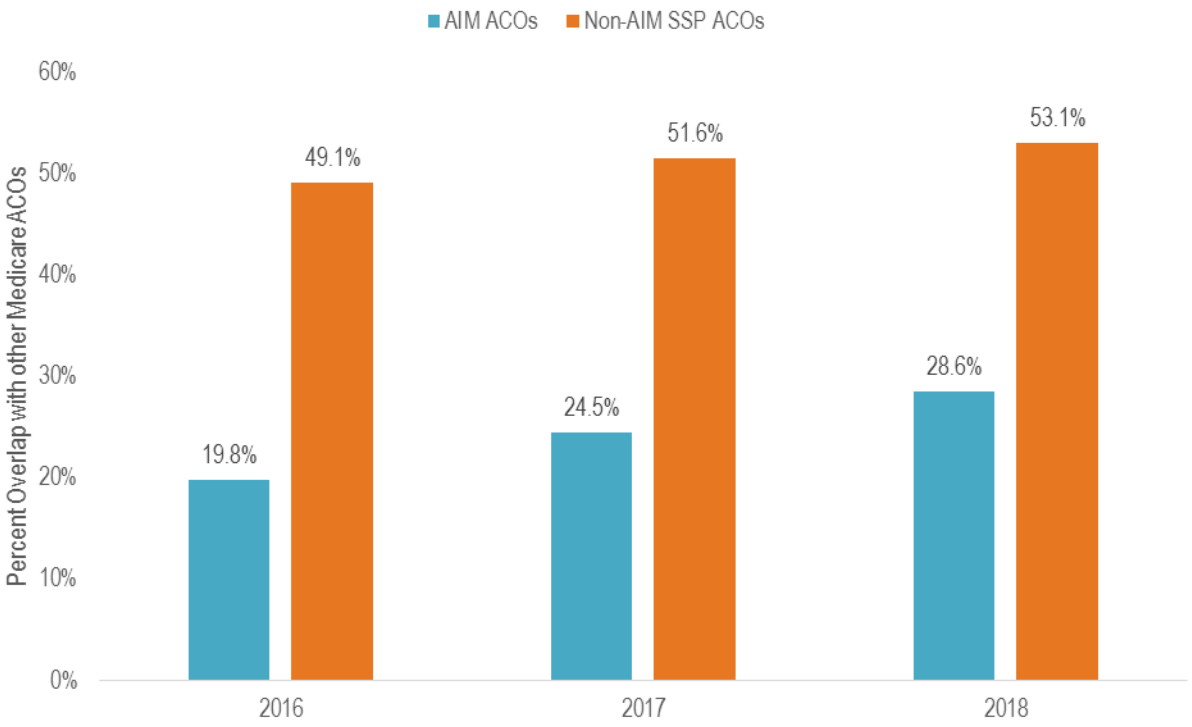
Exhibit 2-4. AIM ACOs' Markets Were More Rural and Underserved than Markets of Similar Non-AIM SSP ACOs

	AIM ACOs (N=41) Means			Similar Non-AIM SSP ACOs Means		
	2016	2017	2018	2016 (N=89)	2017 (N=77)	2018 (N=70)
Rurality	75.9%	72.6%	70.2%	24.1%	25.1%	27.0%
Primary Care Health Professional Shortage Area (HPSA)	15.1%	15.4%	15.5%	7.1%	7.3%	7.3%
Mental Health HPSA	71.3%	71.6%	70.6%	33.8%	33.8%	31.3%
Area Deprivation Index (ADI; higher is greater deprivation)	61.6	61.3	60.6	53.1	53.3	52.8
Favorability Index (higher is more favorable to ACO formation)	27.3	27.4	27.2	39.9	40.8	40.0
Medicare Advantage (MA) penetration	22.0%	22.7%	24.6%	27.5%	29.3%	31.6%
ACO composed of contiguous counties	31.7%	29.3%	31.7%	76.4%	74.0%	77.1%

Notes: We mapped rurality, HPSA, ADI, MA penetration, and contiguity measures at the ZIP Code level to beneficiaries' residence and then averaged across all beneficiaries assigned to the ACO to construct ACO-level estimates. We mapped market favorability scores at the hospital referral region level to beneficiaries' residence and then averaged across all beneficiaries in the ACO to construct ACO-level estimates. Similar non-AIM SSP ACOs decreased over time (89 in 2016, 77 in 2017, and 70 in 2018) from attrition from the Shared Savings Program. Appendix 2A reports the ACO-level values for AIM ACOs.
Source: See Exhibit 2-2 and Appendix 1A for a description of the metrics and data sources used.

AIM ACO beneficiaries were also less likely to be located in markets served by other Medicare ACOs (**Exhibit 2-5**). Other Medicare ACO markets were defined by the PCSAs in which beneficiaries attributed to SSP ACOs, NextGen ACOs, and CEC ESCOs resided. In 2016, on average, 19.8 percent of an AIM ACO's beneficiaries resided in a PCSA served by another Medicare ACO. This percentage was 49.1 percent for similar non-AIM SSP ACOs. Overlap increased among both AIM and similar non-AIM SSP ACOs over time, as participation in NextGen and Shared Savings Program increased. In 2018, on average, 28.6 percent of AIM ACOs' assigned beneficiaries resided in a PCSA served by another Medicare ACO, while this percentage was 53.1 percent for similar non-AIM SSP ACOs.

Exhibit 2-5. AIM ACOs' Markets Were Less Likely to Overlap with Other Medicare ACOs Compared to Non-AIM SSP ACOs



Notes: Overlap is measured as the percentage of AIM ACOs' assigned beneficiaries located in PCSAs that were also served by other Medicare ACOs. Medicare ACOs are ACOs participating the Shared Savings Program, the Next Generation ACO Model, and the Comprehensive End-Stage Renal Disease Care Model.
Source: Master Data Management beneficiary database and Medicare claims and enrollment data, 2016-2018.

AIM ACOs' markets also had low rates of beneficiaries participating in other non-ACO initiatives, such as BPCI, CJR, OCM, and CPC (**Exhibit 2-6**). Of the beneficiaries assigned to AIM ACOs, 1.57 percent had an OCM episode in 2016. This rate was 1.84 percent for beneficiaries assigned to similar non-AIM SSP ACOs for the same year. For nearly all initiatives examined in **Exhibit 2-6**, the rates in the AIM ACO beneficiaries were comparable, though slightly lower, than those for similar non-AIM SSP ACO beneficiaries.

Exhibit 2-6. AIM Beneficiaries Have Low Overlap with Other CMMI Initiatives

	OCM	CJR	BPCI	BPCI, Advanced	CPC
2016					
AIM ACO (N=387,017 beneficiaries)	1.57%	0.10%	1.02%	-	0.00%
Similar Non-AIM SSP ACO (N=736,957 beneficiaries)	1.84%	0.21%	1.62%	-	0.00%
2017					
AIM ACO (N=423,499 beneficiaries)	2.55%	0.20%	0.68%	-	0.46%
Similar Non-AIM SSP ACO (N=644,824 beneficiaries)	3.04%	0.35%	1.16%	-	5.81%
2018					
AIM ACO (N=447,005 beneficiaries)	1.91%	0.15%	0.43%	0.34%	0.20%
Similar Non-AIM SSP ACO (N=606,011 beneficiaries)	2.30%	0.24%	0.77%	0.37%	3.38%

Notes: OCM = Oncology Care Model; CJR = Comprehensive Care for Joint Replacement; BPCI = Bundled Payments for Care Improvement; CPC = Comprehensive Primary Care Initiative. We measured overlap as the percentage of ACO beneficiaries that were also assigned to other CMMI initiatives. We excluded beneficiaries in PCSAs where less than 0.5 percent of the ACO's attributed beneficiaries resided. There were 41 AIM ACOs in each year from 2016 to 2018. There were 89 similar, non-AIM SSP ACOs in 2016, 77 in 2017, and 70 in 2018.
Source: Data for OCM, CJR and BPCI were provided by CMS (see Appendix 1A). Beneficiaries in CPC (Classic and CPC+) were obtained from the Master Data Management.

Across a variety of metrics, AIM ACOs were located in areas of the nation with greater health care needs and less access to accountable care. With AIM, CMS was successful in stimulating ACO formation in areas where ACOs may not have otherwise formed and where other Medicare payment and delivery innovations were less likely to be present. In the next section, we show that the ACO leadership of many AIM ACOs indicated that AIM funds helped them to form an ACO and join the Shared Savings Program.

2.2.2 AIM funds were essential to ACO start-up

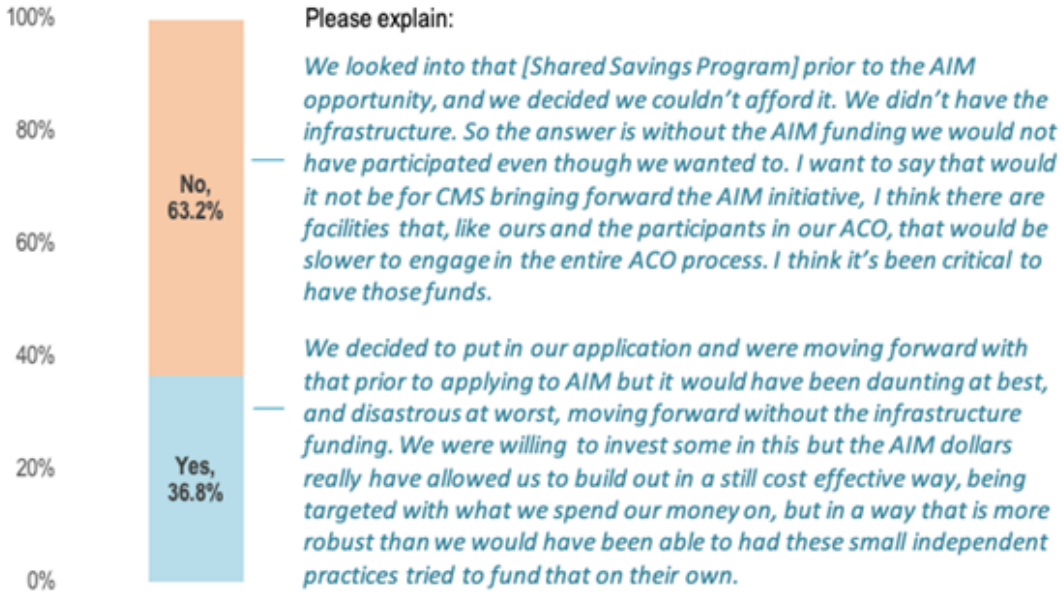
AIM ACO leadership conveyed through interviews and the ACO Web survey that they wanted to join the Shared Savings Program to gain experience in delivering value-based care and remain independent. ACO representatives specifically noted that AIM funds were critical to building the infrastructure needed to implement their ACOs. They mentioned that in the changing health care landscape focused on value-based care, many independent practices and physicians were going out of business or were forced to join larger hospital-based systems.[13]

> *What we were seeing here is that our physicians were going out of business in record numbers, and we did not want to see a situation in our community where every doctor is employed by a hospital. We were hoping to give them another option to stay an independent practice. So, a lot of motivation [was] to try to do that, and the good news is that the Medicare Shared Savings Program potentially provided that opportunity if we could be successful at it. And so, having been successful so far has really been a positive experience for our doctors in that they feel now that at least there's another plausible choice.*

[13] This theme echoed one of the common rationales expressed by ACOs that participated in the AP model, which viewed the ACO as a way to maintain independence in an increasingly consolidated health care delivery environment. https://www.lmpolicyresearch.com/documents/Advance-Payment-ACO-Evaluation-Final%20Report.pdf

AIM funds provided crucial resources to enable many of these ACOs to join the Shared Savings Program. More than half of the ACOs that began the Shared Savings Program and AIM in 2016 said that without AIM funding, they would not have been able to meet the Shared Savings Program participation requirements, nor would they have had resources to build necessary ACO infrastructure. Responses to the AIM ACO Web survey confirmed that AIM funding was a key part of ACOs' Shared Savings Program participation (**Exhibit 2-7**).

Exhibit 2-7. Would You Have Participated in the Shared Savings Program without AIM?



Source: AIM ACO responses to an ACO Web survey fielded in the fall of 2018, N=38; interviews with AIM ACOs conducted in 2016.

AIM enabled physicians with smaller practices to pursue their goal of gaining experience with payment and delivery models that encourage value-based care and population health management. Absent supplemental start-up funds provided by AIM, core elements of AIM ACOs' operating structures—and some of the ACOs themselves—may not have existed. ACO representatives consistently underscored this point during the first and second rounds of interviews.

> *We really got into [the ACO] knowing that health care was transitioning from fee-for-service to value and quality. Obviously, the AIM grant allows us to dig into it and continue to increase our focus on quality, but that is the way medicine is going. I don't think [our goals] have changed. [Participating in AIM] has allowed us to home in on [them].*

On Joining Shared Savings Program and AIM
Excerpts from AIM ACO interviews

- The Shared Savings Program opportunity: AIM ACOs emphasized participating in the Shared Savings Program because of the increasing importance of reducing costs, improving quality, and transitioning to a value-based model of care delivery, particularly among independent physicians who wished to remain so. AIM ACOs indicated that the Shared Savings Program provided an opportunity for independent physician practices to remain in business and avoid acquisition by area hospitals. Another AIM ACO wanted to demonstrate that their FQHC collective could work together and achieve shared savings without relying on other provider types.

  > *In our experience those kind of doctors [in small independent practices] are becoming a dinosaur because a lot of doctors are scared about health care reform and they're becoming employees of these larger organizations, but there are still some doctors that want to be their own boss. They have their own private office and want to keep it going. We are trying to help them move into the new health care industry while still being able to do that. We feel that's a model that exists in other parts of the country so we wanted to show that you can be part of an integrated system and still be independent.*

  Another AIM ACO indicated that joining the Shared Savings Program would allow for learning and dissemination of best practices for success in value-based reimbursement models to other FQHCs within their collaborative and apply their learnings to other populations and payers (e.g., Medicaid managed care, dual eligible beneficiaries). Other AIM ACOs felt that shared savings would provide incentives for reluctant providers to embrace value-based care.

- Critical role of AIM funds: Many AIM ACOs indicated that AIM was an opportunity for independent primary care practices operating in rural communities to hire population health staff such as care managers or outreach coordinators who they otherwise would not have been able to support. One ACO indicated that AIM funding was particularly helpful because all of the providers came from small, independent practices that would not have been able to develop successful ACOs without this funding. Another ACO stated unequivocally that participation in AIM enabled them to launch a Medicare ACO and implement care management services. An AIM Test 2 ACO with two decades of experience operating an independent practice association under capitated payment arrangements indicated that without AIM funds they would have withdrawn from the Shared Savings Program.

  > *Our organization is composed of smaller independent medical practices, mostly located in the rural areas, and unsupported by large health systems. It is highly likely that if [our ACO] had not been granted the AIM funding, or had not found a sponsoring entity, the ACO would not be able to support the infrastructure and staffing necessary for the three years of operations under the Medicare Shared Savings Program.*

2.2.3 Management companies provided needed support to AIM ACOs

Most AIM ACOs (37 of 45 ACOs) had relationships with a management company (**Exhibit 2-8**). Through interviews, several management companies indicated that they provided ACO services that many clinics and provider groups across the county otherwise lacked, including the capacity and knowledge to implement population health initiatives, the ability to manage claims-based analytics, and practice management.

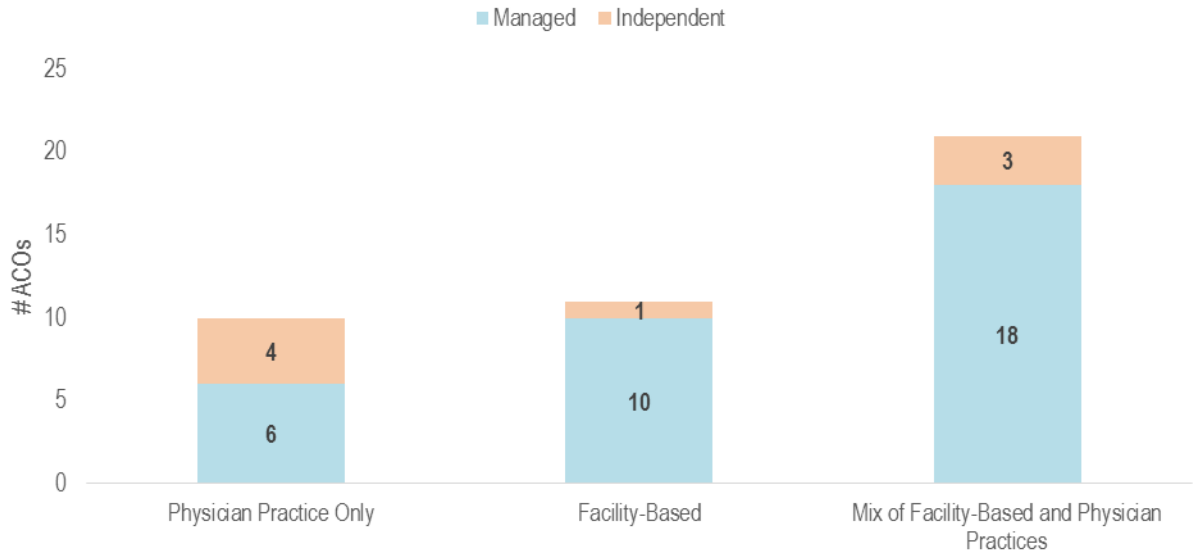
Exhibit 2-8. AIM ACOs' Management Company Relationships

Management Company Name	# ACOs
Caravan Health	21
Other management company	16
No management company	8

Source: AIM evaluation team interviews and CMS programmatic data

Management company representatives felt that the necessity of having a management company depended on the type and organizational structure of the ACO. For example, for a network of independent primary care physician practices, the role of the management company was to coordinate reporting, analytics, and practice management, which the practices would otherwise be unable to do. In contrast, for ACOs that were part of an integrated health system, there was already a built-in management company function so support from an external entity may not have not been a necessity. We examined how the use of management companies differed by ACO composition (**Exhibit 2-9**). Six of the ten AIM ACOs composed of only physician practices were affiliated with a management company (60.0 percent) while 13 of the 14 facility-based AIM ACOs were affiliated with a management company (93.0 percent). Among the 21 AIM ACOs that were composed of a mix of physician practices and facility-based providers, 18 (85.7 percent) used a management company.[14]

Exhibit 2-9. Use of Management Companies by ACO Composition



Source: ACO Provider Research Identifiable File and Medicare claims, 2018.
Notes: ACOs were categorized based on shares of eligible evaluation and management (E&M) charges used for determining beneficiary assignment to ACOs. The assigned beneficiaries to ACOs categorized as physician practice-based did not incur E&M charges with any facility-based providers. ACOs were categorized as facility-based if 75 percent or more of the assigned beneficiaries' E&M charges were incurred by Federally Qualified Health Centers (FQHCs), Rural Health Clinics (RHCs) or Critical Access Hospitals (CAHs). ACOs were categorized as mixed if less than 75 percent of assigned beneficiaries' E&M charges were incurred by FQHCs, RHCs, or CAHs.

Many AIM ACOs reported through interviews with their leadership that they did not have the necessary expertise and infrastructure to be successful in AIM without engaging the services of a management company. The leadership of these ACOs reported that management companies handled ACO administration and program compliance, including budgeting, developing expense reports, and coordinating the ACO board and committees. Some management companies performed quantitative data analysis—typically of Medicare claims data and quality measures—and disseminated results back to their participants. AIM ACOs that worked with management companies also received assistance with care management, including analysis of claims or electronic health record (EHR) data with the goal of identifying beneficiaries for care management and hiring care management staff.

[14] We note that we do not track whether some AIM ACO practices and providers were part of an integrated health system during some or all of their time in AIM.

The only funds that really flow through the local community is that they get reimbursement for travel for education and some dollars for IT (laptops, education). Some ACOs have a few funds available for care coordinators. One outlay that a local community may have is the care coordinator salary and benefits. But, what [Caravan] really offers is a turn-key system, including coaching, NurseWise (the after-hours nurse line . . .), patient-satisfaction, governance, education, access to data from Lightbeam [the data analytics platform]. These all get bundled up into one set of management fees and that transfers from AIM funds signed off by the ACO secretary and comes back to Caravan.

The management company Caravan Health ("Caravan") managed 21 of the 41 AIM Test 1 ACOs and provided a "turn-key" solution to ACOs just getting off the ground. The management company, Aledade, similarly reported offering a "standard playbook of transformation services" to its four managed ACOs. Akira Management Services Organization noted that it provided a mix of tailored services to its three managed ACOs (two of which were AIM ACOs) based on the provider composition and geographic markets of each ACO.

AIM ACO participation rates were bolstered by management companies; for example, Caravan took an active role in recruiting and forming AIM ACOs. Caravan conducted proactive outreach to providers, including rural hospitals, RHCs, FQHCs, and provider groups to organize them into ACOs. Caravan reported that it viewed AIM as an opportunity for small and rural providers to use financial assistance to gain experience with value-based care in a sustainable way.

Support from management companies had the potential to provide knowledge and stability that small, rural ACOs needed to build and sustain the ACO. Caravan noted that health care workforce shortages in rural communities were a challenge to ACO success. For example, they explained that one population health nurse might manage the entire Medicare population in a rural community, and the entire program might falter if the nurse leaves. Moreover, the reality of small, rural facilities is that if the CEO turns over and the new executive is not a champion of population health, the ACO could end.

Management companies aided AIM ACOs with the necessary infrastructure, reporting, and other operational aspects of running an ACO. Representatives from the management company Aledade stated that its client organizations lacked the infrastructure to operate an ACO and knowledge of the activities needed to earn shared savings on their own. Even if the Aledade ACOs had funding, the representatives felt that without centralized management company support, the ACOs may not have been sustainable for the duration of AIM. Indeed, the Akira Health Management Services Organization (MSO) was created when the first Akira ACO (formed prior to AIM) realized that it was unable to keep up with the required reporting and operations on its own. In an interview with CMMI AIM model leads, they suggested that ambiguity about how to implement an ACO and meet CMS requirements promoted the ACOs' dependence on management company support.

During second-round interviews, after AIM ACOs had at least two years of experience in the Shared Savings Program, some ACO representatives reported that they had become less dependent on their management companies. Some ACOs also noted that management company services were expensive and not all the analytic tools offered were utilized; in hindsight, some ACO representatives felt like they would have benefited from having done more research before selecting a management company or purchasing analytic tools.

2.3. Sustained Participation and Financial Risk-Taking

2.3.1 Only 30 percent of AIM ACOs renewed their participation and remained as an SSP ACO by 2020

Of the 47 ACOs that began in AIM, 16 remained in the program as of 2019 (34.0 percent) and 14 in 2020 (29.8 percent). Two AIM Test 2 ACOs exited in 2015, shortly after beginning AIM; the majority of ACOs chose to not renew and exited at the end of 2018, which was the end of the first Shared Savings Program three-year participation period for the majority of AIM ACOs. Also at the end of 2018, CMS released the final "Pathways to Success" rule for a program start date of July 1, 2019. ACOs that exited at the end of 2018 were making their decisions in the context of requirements specified in Pathways to Success. Two additional AIM Test 1 ACOs exited at the end of 2019 (see **Exhibit 2-10**).

Exhibit 2-10. Most AIM ACOs Exited the Shared Savings Program by the End of 2018

ACO ID	ACO Name	SSP Start Year	AIM Start Date	Exit (Year)/ Remain
AIM Test 2 ACOs				
A1085	Physicians Collaborative Trust of Mississippi Gulf Coast	2012	4/1/15	Exit (2015)*
A1419	Baroma Healthcare International	2013	4/1/15	Exit (2015)*
A1737	The Premier HealthCare Network	2013	4/1/15	Remain
A1744	Akira Health	2013	4/1/15	Exit (2018)
A2011	Sunshine ACO	2014	1/1/16	Exit (2018)*
A2084	PremierMD ACO	2014	1/1/16	Remain
AIM Test 1 ACOs				
A2596	Carolina Medical Home Network Accountable Care Organization	2015	1/1/16	Remain
A2619	IL-RCCO	2015	1/1/16	Remain
A2622	Reid ACO	2015	1/1/16	Exit (2019)*
A2634	Akira Health of Los Angeles Inc	2015	1/1/16	Remain
A2662	Texas Rural ACO	2015	1/1/16	Exit (2018)*
A2763	Access Care Oklahoma	2016	1/1/16	Remain
A2772	Citrus ACO	2016	1/1/16	Remain
A2782	AmpliPHY of Texas ACO	2016	1/1/16	Exit (2018)
A2809	AmpliPHY of Kentucky ACO	2016	1/1/16	Remain
A2852	Winding River ACO	2016	1/1/16	Exit (2018)
A2856	Prairie Hills Care Organization	2016	1/1/16	Exit (2018)
A2858	Great Plains Care Organization	2016	1/1/16	Exit (2018)
A2860	Mountain Prairie ACO	2016	1/1/16	Exit (2018)
A2861	Iowa Rural ACO	2016	1/1/16	Exit (2018)
A2862	Illinois Rural ACO	2016	1/1/16	Exit (2018)
A2864	Suburban Health ACO 2	2016	1/1/16	Exit (2018)
A2866	Indiana Rural ACO	2016	1/1/16	Exit (2018)
A2867	Greater Michigan Rural ACO	2016	1/1/16	Exit (2018)
A2869	Southern Michigan Rural ACO	2016	1/1/16	Exit (2018)

ACO ID	ACO Name	SSP Start Year	AIM Start Date	Exit (Year)/ Remain
A2871	New Hampshire Rural ACO	2016	1/1/16	Exit (2018)
A2872	Ohio River Basin ACO	2016	1/1/16	Exit (2018)
A2876	Magnolia-Evergreen ACO	2016	1/1/16	Exit (2018)
A2879	North Mississippi Connected Care Alliance	2016	1/1/16	Exit (2019)*
A2882	Deep South Regional ACO	2016	1/1/16	Exit (2018)
A2890	Minnesota Rural ACO	2016	1/1/16	Exit (2018)
A2892	Oregon - Indiana ACO	2016	1/1/16	Exit (2018)
A2893	Mountain West ACO	2016	1/1/16	Exit (2018)
A2895	High Sierras-Northern Plains ACO	2016	1/1/16	Exit (2018)
A2916	Aledade Kansas ACO	2016	1/1/16	Remain
A2920	Aledade West Virginia ACO	2016	1/1/16	Remain
A2949	Heartland Physicians ACO	2016	1/1/16	Exit (2018)
A2952	Alliance ACO	2016	1/1/16	Remain
A3043	Kentucky Primary Care Alliance	2016	1/1/16	Exit (2018)
A3047	Aledade Mississippi ACO	2016	1/1/16	Remain
A3075	Tar River Health Alliance	2016	1/1/16	Remain
A3083	Affiliated ACO	2016	1/1/16	Exit (2018)
A3091	California ACO	2016	1/1/16	Exit (2018)
A3102	San Juan Accountable Care Organization	2016	1/1/16	Exit (2018)
A3104	Rocky Mountain Accountable Care Organization	2016	1/1/16	Exit (2018)
A3118	MissouriHealth+	2016	1/1/16	Exit (2018)
A3151	Beacon Rural Health	2016	1/1/16	Remain
	# ACOs Remaining in 2020 (%)			14 (29.8%)
	# ACOs Exited by 2020 (%)			33 (70.2%)

Note: * Indicates that the ACO exit did not coincide with the end of a three-year Shared Savings Program participation period. The year shown in parentheses indicates the last year of the ACO participated in the program.
Source: Shared Savings Program participants from data.medicare.gov.

As of 2020, 12 AIM Test 1 ACOs and 2 AIM Test 2 ACOs remained in the Shared Savings Program. Of the 36 AIM Test 1 ACOs that began both AIM and the Shared Savings Program in 2016, 10 renewed under Pathways to Success in 2019. The remaining 26 ACOs did not renew participation. Among the five AIM Test 1 ACOs that began in the Shared Savings Program in 2015, one exited at the end of 2018 and another exited at the end of 2019; three remained in the Shared Saving Program as of 2020. The participation period for these ACOs will end in 2020, at which time they may renew under Pathways to Success. Two AIM Test 2 ACOs exited the Shared Savings Program at the end of 2018.

Among non-AIM SSP ACOs similar to AIM Test 1 ACOs, we found that 56 of 89 ACOs remained in the Shared Savings Program in 2019 (62.9 percent) and 54 remained in 2020 (60.6 percent). Although exit rates were higher among AIM ACOs, no AIM Test 1 ACOs exited prior to 2018, while 19 similar non-AIM SSP ACOs (21.4 percent) did exit prior to the end of 2018.[15] AIM did have a requirement to pay back AIM funds if the ACO exited before the end of the first participation period, which likely contributed to the lower AIM exit rates prior to 2018. Conversely, the rules of AIM Test 1 allowed Test 1 ACOs to be excused from the requirement to pay back AIM funds if the ACOs did not renew at the end of the participation period, which may have contributed some of their decisions to exit and form or join other ACOs after 2018 (discussed further in **Section 2.3.3**).

We examined characteristics of AIM ACOs that exited the Shared Savings Program before the 2020 performance year versus those that remained (**Exhibit 2-11**). We found the following:

Exhibit 2-11. AIM ACOs Exiting the Shared Savings Program were More Rural and More Likely to Have a Relationship with Management Company, 2018[a]

	Remain in 2020	Exit
# AIM ACOs participating in 2018 (N=45)	14	31
ACOs with management company, # (%)	8 (57.1%)	28 (90.3%)
Assigned beneficiaries, average (median)	12,119 (9,012)	9,780 (9,823)
Average rurality	43.8%	76.4%
ACOs with earned shared savings, # (%)	8 (57.1%)	17 (54.8%)
ACOs with all AIM funds recouped, # (%)	7 (50.0%)	11 (35.5%)
# AIM ACOs up for renewal in 2019 (N=36)	10	28
ACOs with earned shared savings, # (%)	7 (70.0%)	16 (57.1%)
ACOs with all AIM funds recouped, # (%)	6 (60.0%)	10 (35.7%)

[a] Management company use, assigned beneficiaries, rurality, and recoupment are from 2018. Any earned shared savings and recoupment is calculated from the start of AIM to the end of 2018.

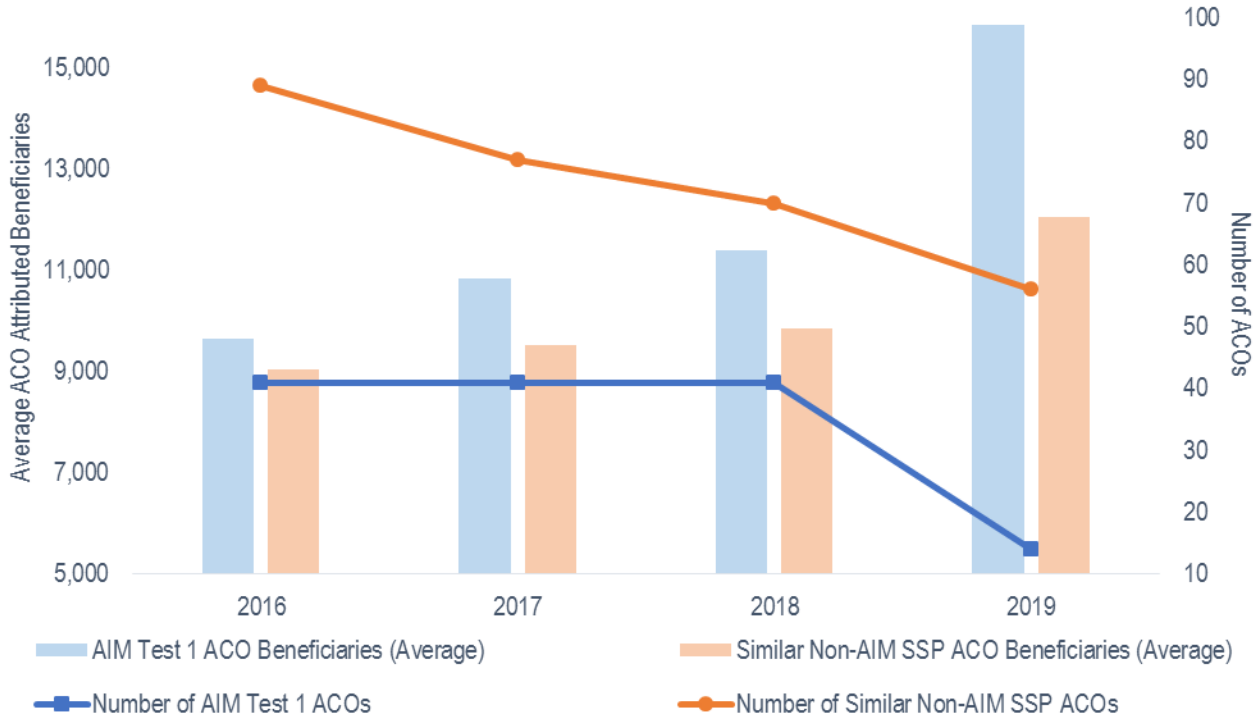
All Caravan-managed ACOs exited: The majority of AIM ACOs that exited were affiliated with a management company (28 of 31 exiting AIM ACOs, or 90.3 percent), as shown in **Exhibit 2-11**. All 21 Caravan-managed AIM ACOs exited by 2020 (19 exited at the end of 2018 and two exited at the end of 2019). In an interview with Caravan representatives in mid-2019, Caravan noted that new requirements to move to two-sided financial risk under Pathways to Success were a factor in the ACOs' exits and subsequent reconfiguring of providers into other ACOs. Caravan felt that for rural ACOs to successfully take on downside risk, it was necessary to pool together beneficiaries into larger ACOs that could spread the risk. We found that many ACO participants affiliated with exiting Caravan AIM ACOs were part of a different ACO in 2019 (see **Section 2.3.3**). Caravan ACOs compose the bulk of managed AIM ACOs, but even among the AIM ACOs not affiliated with Caravan, managed ACOs were still more likely to exit.

Exiting AIM ACOs tended to be smaller: AIM ACOs that exited the program by 2020 were smaller than those that remained. The average number of assigned beneficiaries among AIM ACOs that exited was 9,780 compared to 12,119 for those which remained. The median number of beneficiaries was greater for exiting AIM ACOs (9,823) than for remaining ACOs (9,012), indicating that a few large ACOs remained with the program, driving up the average. As shown in **Exhibit 2-12**, AIM ACOs grew in size between 2016 to 2018, on average. In 2019, when 27 AIM ACOs exited the Shared Savings Program, the average AIM ACO increased to 15,857 assigned beneficiaries (for 14 AIM ACOs) compared to 11,412

[15] The similar non-AIM SSP ACOs included 44 SSP 2016 starters and 45 SSP 2015 starters. Five of the 2016 starters had exited the Shared Savings Program by the end of 2018 and 14 of the 2015 starters had exited by the end of 2018. Eight of the 14 exited at the end of 2017, which was the end of the first participation period for these ACOs.

assigned beneficiaries for the 41 AIM ACOs in 2018. Similar non-AIM SSP ACOs also went from an average of 9,867 beneficiaries (for 70 ACOs) in 2018 to 12,067 beneficiaries (for 56 ACOs) in 2019. The growth of both AIM and non-AIM SSP ACOs reflects both the increasing size of existing ACOs over time as well as the exit of smaller ACOs.

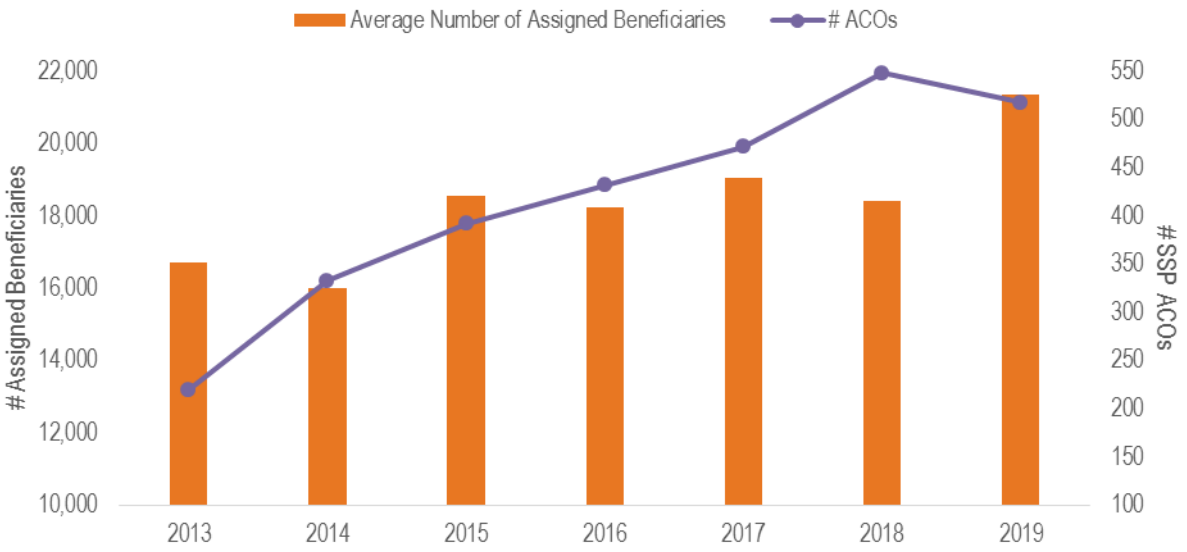
Exhibit 2-12. AIM Test 1 ACOs Grew Over Time and AIM ACOs Renewing in the Shared Savings Program in 2019 Tended to be Larger



Note: Similar non-AIM SSP ACOs were non-AIM SSP ACOs that started the Shared Savings Program in the same year as the AIM Test 1 ACOs, were of similar size (fewer than 15,000 attributed beneficiaries when they first started), did not participate in the Advanced Payment ACO Model, and started in the one-sided financial risk track.
Source: Shared Savings Program Public Use Files, 2013-2019. The average number of attributed beneficiaries in 2019 was obtained from the MDM beneficiary file since it was not yet available through the Shared Savings Program Public Use Files.

This finding is generally consistent with size trends for ACOs in the Shared Savings Program overall. The average number of attributed beneficiaries in any SSP ACO increased from 16,706 in 2013 to a high of 21,366 in 2019 (**Exhibit 2-13**). The number of SSP ACOs steadily increased between 2013 (220) and 2018 (548) and decreased in 2019 (518).

Exhibit 2-13. Growth in the Number and Size of ACOs in the Shared Savings Program Over Time



Source: Shared Savings Program Public Use Files, 2013-2018. The average number of attributed beneficiaries in 2019 was obtained from the Master Data Management beneficiary file.

Through interviews, the leadership of some AIM ACOs noted that they struggled to maintain the 5,000 minimum attributed beneficiaries required by the Shared Savings Program. One of the AIM Test 2 ACOs that exited in 2015 specifically noted its inability to maintain the minimum beneficiary threshold as a reason for exit. More recently, Sunshine ACO, another AIM Test 2 ACO that exited at the end of 2018 (prior to the end of its three-year participation period) cited difficulties maintaining the minimum attributed beneficiary threshold as one contributing factor for its exit.[16]

Exiting ACOs tended to be more rural: The average rurality of ACOs that exited was 76.4 percent compared to 43.8 percent among those that remained. This pattern remained even after excluding Caravan ACOs, which were mostly rural ACOs. The average rurality of ACOs renewing with Pathways to Success (11 AIM ACOs) was 51.0 percent. Non-AIM SSP ACOs had an average rurality of 21.9 percent; thus, remaining AIM ACOs were still more likely to be rurally located compared with other ACOs in the Shared Savings Program. Caravan executives felt that rural providers were not given sufficient incentives to continue participation in the Shared Savings Program under Pathways to Success, which requires more rapid movement to a two-sided financial risk track. They noted that some rural providers and practices do not have an incentive to participate in Pathways to Success because they are not subject to any value-based payment adjustments under the Quality Payment Program (QPP).[17] Providers and practices that are subject to QPP payment adjustments can earn credit by participating in certain financial tracks under Pathways to Success. They noted that, while rural providers are invested in their communities and want to improve population health, given the absence of the QPP payment incentive, they needed more compelling financial reasons to join this particular CMS program.

---

16 CMS shared this information with the evaluation team in a November 2019 email exchange.

17 The QPP rewards or penalizes Medicare clinicians based on performance. Clinicians can participate in two ways – either through the Merit-based Incentive Payment System (MIPS) or through participation in an advanced Alternative Payment Model (APM). Certain tracks under Pathways to Success would qualify as an advanced APM. However, very small practices and clinicians that bill entirely through FQHCs and RHCs are excluded from the payment adjustments under MIPS.

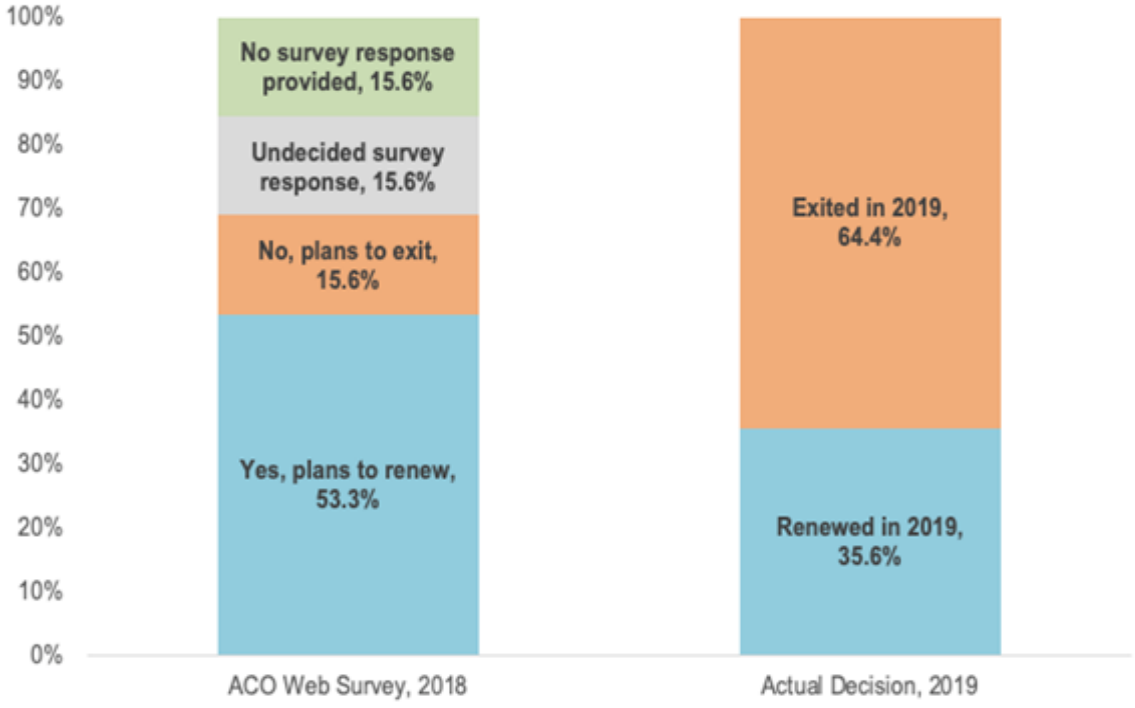
Remaining ACOs were more likely to have earned shared savings and have AIM payments fully recouped: As shown in **Exhibit 2-11**, exiting ACOs were slightly less likely to have earned shared savings at some point between 2015 and the end of 2018 (54.8 percent of exiting ACOs had earned some shared savings compared to 57.1 percent among the ACOs that remained as of 2020). Remaining AIM ACOs were more likely to have fully paid back AIM funds – 7 of 14 remaining ACOs (50.0 percent) fully paid back AIM funds while 11 of 31 exiting ACOs (35.5 percent) fully paid back AIM funds. Among ACOs deciding whether to renew participation in 2019 (i.e., ACOs starting a first or second participation period in 2016 and deciding to renew in 2019 as opposed to ACOs still within a participation period in 2019), the differences were greater. Of the 10 AIM ACOs that renewed in 2019 and were still participating in 2020, 7 ACOs (70.0 percent) had earned shared savings since starting AIM. Of the 28 AIM ACOs that were up for renewal in 2019 but decided not to renew, 16 (57.1 percent) had earned shared savings since starting AIM. For renewing ACOs, 60.0 percent fully paid back AIM funds while only 35.7 percent of AIM ACOs that did not renew fully paid back AIM funds. AIM Test 1 allowed AIM Test 1 ACOs to have their AIM debt forgiven if they left the Shared Savings Program after the first participation period.

Through interviews with AIM ACO leadership, only about one-quarter of ACOs reported that they were unsure whether they would renew and that their decision would be contingent upon their financial performance in the final year of AIM. Thus, whether the ACO was successful in earning shared savings was not the only factor in the decision to remain in the Shared Savings Program, but it did appear to be an important determinant. As discussed further below, the majority of the AIM ACOs that assumed two-sided financial risk as of 2019 earned shared savings in at least one year since starting AIM.

AIM ACOs had previously indicated plans to renew in the Shared Savings Program

The second (and last) round of interviews and surveys with AIM ACOs occurred in early 2018, prior to the deadline for making decisions on whether to renew in Pathways to Success (ACOs were given more time to make this decision given the changes to the program). At that time, most AIM ACOs reported that they intended to continue in the Shared Savings Program. When the question of renewing Shared Savings Program participation was asked during the ACO Web survey at the end of 2018, the majority of AIM ACOs affirmed an intent to renew their Shared Savings Program participation agreement (53.3 percent), as shown in the left bar of **Exhibit 2-14.** The Web survey question specifically asked the ACOs to assess their likelihood of continuing in the Shared Savings Program in its current form (i.e., with a three-year participation period under one-sided financial risk before moving to two-sided financial risk), since it was prior to the finalization of Pathways to Success. In contrast, the right bar shows that only 35.6 percent of AIM ACOs renewed in 2019 and 64.6 percent exited once they made their decisions under the requirements specified in Pathways to Success.

Exhibit 2-14. More Than Half of AIM ACOs Planned to Renew in the Shared Savings Program But Fewer Actually Renewed in 2019



Note: AIM ACO responses to ACO Web survey item ("Does Your ACO Plan to Renew Its Participation Agreement?") fielded in the fall of 2018 and actual Shared Savings Program renewals and exits in 2019 for 45 AIM ACOs. The survey item asked respondents to assess the likelihood of renewal in Shared Savings Program assuming no changes to the program.
Source: AIM ACO Web survey and Shared Savings Program Public Use Files, 2019.

ACOs that were renewing for an agreement period beginning on July 1, 2019 needed to do so in Pathways to Success while those still within their three-year Shared Savings Program participation agreement period could continue under the same rules in the Shared Savings Program until they were due for renewal.[18] If AIM ACOs joined Pathways to Success, they could spend a year with upside-only financial risk before being required to move to a two-sided financial risk track. Note that ACOs selecting to renew under Pathways to Success for a participation agreement period beginning on July 1, 2019 could have upside-only financial risk in 2019 (the transition year) as well as 2020 (first 12-month performance year under Pathways to Success policies). In contrast, before Pathways to Success, ACOs that participated under the upside-only financial risk track could renew for a second three-year agreement period under upside-only financial risk.

The risk-taking requirements under Pathways to Success likely influenced ACOs' decision making in sustaining program participation. According to an interview with Akira management company representatives, most AIM ACO physicians Akira worked with were amenable to the concept of

[18] The most critical change is the structure of the financial risk tracks in the Shared Savings Program (Track 1, 1+, 2, and 3) to BASIC and ENHANCED tracks under Pathways to Success, with the BASIC track including a five-level "glide path" toward greater two-sided risk over a five-year participation period. Levels A and B of the BASIC track entail upside financial risk only. ACOs with prior experience must enter at Level B and can only remain at this level for a year before moving to level C or higher, which requires increasing degrees of risk-taking.

renewing, but in upside-only risk. Furthermore, they felt that the ENHANCED track was not a feasible option for independent primary care providers, though it might be for large organizations. Caravan representatives asserted that AIM ACO providers, in their current form, would need at least two to three years without two-sided financial risk in Pathways to Success. Given the substantive changes under Pathways to Success, they felt that their AIM ACOs, in their current form, would not be able to successfully translate the AIM lessons learned to Pathways to Success.

AIM Test 2 financial guarantee

Lastly, the AIM surety bond requirement for AIM Test 2 ACOs was noted as a challenge to the ACO's sustainability. CMS required that Test 2 AIM ACOs furnish a financial guaranty (i.e., a surety bond) that ensured another party would assume responsibility for the AIM ACO's debt in the event the ACO defaulted on its obligation to repay AIM funds. One AIM Test 2 ACO's representatives said it was difficult to update the surety bond every six months and the requirement posed a financial burden to smaller ACOs. They did not have sufficient financial assets to obtain the surety bond and had to put the CEO's personal assets on the line. They felt that only large organizations with substantial assets to repay the AIM funds to CMS or those with a sponsor could obtain the guarantee easily. They felt the types of organizations AIM sought to attract would struggle with this financial requirement.

2.3.2 AIM ACOs did not feel ready to take on two-sided financial risk

All ACOs began AIM in Track 1 with upside-only financial risk. In upside-only financial risk, ACOs could share in lower Medicare spending relative to their financial benchmark but face no penalties if they did not lower Medicare spending. Earned savings were limited to 50 percent of generated savings each year. Other financial risk tracks, Track 1+, 2 and 3, required two-sided financial risk but differed in the extent of savings (and losses) to which the ACOs would receive or need to pay.

Through 2020, a total of nine AIM ACOs (two AIM Test 2 and seven AIM Test 1 ACOs) moved from one-sided to two-sided financial risk, as listed in **Exhibit 2-15.** Of the nine AIM ACOs moving to a two-sided financial risk track, seven had successfully earned shared savings in the years prior to moving to a two-sided financial risk track. One of the nine AIM ACOs (Sunshine ACO) exited the Shared Savings Program at the end of 2018, and another (North Mississippi Connected Care Alliance) exited the program at the end of 2019. Financial reconciliation to determine shared savings in 2019 was not available at the time of this report.

Exhibit 2-15. Nine AIM ACOs Assumed Two-Sided Financial Risk After the Start of AIM

ACO ID	AIM ACO	Test	Year Joined SSP	Year Joined AIM	Year Moved to Two-Sided Risk	Ever Earned Shared Savings (Prior to Two-Sided Risk)?	Participating in 2019/2020
A2011	Sunshine ACO	Test 2	2014	2016	2017	Y	N/N
A2084	PremierMD ACO	Test 2	2014	2016	2018	Y	Y/Y
A2879	North Mississippi Connected Care Alliance	Test 1	2016	2016	2018	N	Y/N
A2772	Citrus ACO	Test 1	2016	2016	2019	Y	Y/Y
A2809	AmpliPHY of Kentucky ACO	Test 1	2016	2016	2019	Y	Y/Y
A2916	Aledade Kansas ACO	Test 1	2016	2016	2019	Y	Y/Y
A2920	Aledade West Virginia ACO	Test 1	2016	2016	2019	Y	Y/Y
A3047	Aledade Mississippi ACO	Test 1	2016	2016	2019	Y	Y/Y
A3151	Beacon Rural Health	Test 1	2016	2016	2019	N	Y/Y

Source: Shared Savings Program Public Use Files, 2014-2020.

Among AIM Test 1 ACOs, seven of 41 ACOs moved to a two-sided financial risk track (19.5 percent). A slightly higher proportion (24.7 percent) of ACOs moved to a two-sided financial risk track among non-AIM SSP ACOs that were similar to AIM ACOs by 2020 (**Exhibit 2-16**). We did not calculate the same percentage among AIM Test 2 ACOs, as there were only four AIM Test 2 ACOs remaining in the Shared Savings Program at the end of 2018 (one had been participating in a two-sided risk track [Track 1+], one renewed under Pathways to Success, and two ended participation after 2018). In 2020, the AIM Test 2 ACO which had been participating in Track 1+ renewed in Pathways to Success in another two-sided financial risk track (BASIC, Level E).

Exhibit 2-16. AIM Test 1 and Similar Non-AIM SSP ACOs Moved to Two-Sided Financial Risk at a Similar Rate

	Moved to Two-Sided Financial Risk	
Year	AIM N=41	Non-AIM SSP N=89
2016	0	0
2017	0	0
2018	1	6
2019	7	12
2020	0	4
Total # ACOs	8	22
% of ACOs present in 2016	19.5%	24.7%

Source: Shared Savings Program Public Use Files. Non-AIM SSP ACOs are similar in starting the Shared Savings Program the same year, initial acceptance of one-sided financial risk, size, and no prior participation in the AP ACO Model.

From interviews and the Web surveys, we found that the leadership of AIM ACOs were generally nervous to take on two-sided financial risk, even at the end of AIM. The ACOs' leadership noted in early-round interviews that they wanted several years of experience in the Shared Savings Program to assess whether they could generate savings. For some AIM ACOs, taking two-sided financial risk was contingent on their organizations' shared savings performance, such that if their organization did not earn shared savings after the first performance year, the ACO would likely stay in the upside-only financial risk track, if it remained in the Shared Savings Program at all. However, during the final round of interviews after a second year of AIM, only four AIM ACOs planned to move to a two-sided financial risk track. More than half of the AIM ACO leadership responses during these interviews indicated that they were unsure whether their organization would accept risk/reward financial arrangements but were considering the option. About one-third said that they did not intend to take on two-sided financial risk.

Caravan Health had noted that many of its ACOs withdrew in response to the new requirement to take on two-sided financial risk sooner than originally expected. They said that they expected to lose 50 to 75 percent of their rural clients because they are not able or willing to accept two-sided financial risk. One ACO said that moving to two-sided financial risk would depend on the extent to which the financial benchmark is based on regional costs, as benchmarking based on regional costs provides an incentive for ACOs to work with only low-cost providers instead of working to bring down the costs of high-cost providers.

In their decision-making process about assuming two-sided financial risk, AIM ACOs described the following considerations about size, their participant network, timing, operational capacity to handle the analytics they believed would be necessary to manage risk-taking, and other organizational factors.

Small size and participant networks: Some AIM ACOs indicated that their small size was why they were unable to absorb downside financial risk. One organization said the other hospitals in its AIM ACO were disinclined to take financial risk on top of challenges from its ACO's small size. Another AIM ACO

believed its small participant network was not well-equipped to provide the full spectrum of care, which made the prospect of being accountable for all assigned patients' total cost of care daunting. Considering its expansion prospects, one AIM ACO said it would have to extend its care continuum beyond the current composition of participating hospitals and affiliated provider partners before it could handle two-sided financial risk. Another organization said that it was looking to engage other hospitals of similar size and ACO experience to join its network before it considered taking two-sided financial risk. Another AIM ACO said that it would have to alter its physician compensation structure to offer incentives for participation if the ACO were to take on two-sided financial risk.

In order to accept risk, you have to have a large population so without organizations like Caravan or other rural ACOs, none of us are big enough to take risk on our own. One patient could wipe the entire organization out. So if CMS chooses not to provide funding for this in the next three to six years to allow organizations to develop nationwide, the rural hospitals will be left behind because they can't afford…they don't have the population to take risks on an individual basis.

We're too small. The only way I could take downside risk is to re-insure it. Rural hospitals are just pushed too hard right now to have a pot of money we can set aside in case it doesn't work out like we thought.

I think one of the things that will need to happen, and I'm hoping we'll have more order in the near future, say in the next six months to a year, as to how the healthcare system is going to be looking like in America and for the local, rural hospitals, what funding is going to look like.

Insufficient time and internal capacity constraints: Interviewees from numerous AIM ACOs asserted that they had insufficient time to thoroughly evaluate the risks and rewards associated with transitioning away from Track 1. Several AIM ACOs believed they needed more time as an ACO to hone their care management activities before they could comfortably accept risk. Leadership from one organization stated that they planned to continue in Track 1 because of concern that taking on two-sided risk could jeopardize the opportunity to do well under MIPS. Other AIM ACO interviewees said that remaining in Track 1 would allow their organization the flexibility to explore other reimbursement models that are expected to emerge from CMMI over the following three years. They noted that participating practices were hesitant to continue forward in the program if they had to use their own funds to pay back losses; ACOs indicated that they needed more time to demonstrate an ability to reduce total cost of care before its participants would support the transition to a two-sided financial risk track.

AIM ACOs described the role of internal organizational and operational factors on their uncertainty around sharing risk with CMS. One organization said it was not inclined to take two-sided financial risk until its organization improved how it tracked patients following hospital discharge. This organization intended to focus on improved patient tracking in the near future, as its goal is to apply for a two-sided financial risk track within the next two years. Leaders from a different organization stated that greater engagement and commitment from ACO participants to using consistent clinical and operational processes (e.g., discharge planning processes) was necessary before the organization could consider taking risk.

Organization in flux: During the second-round interviews, a few organizations discussed potential changes to their ACOs' operating structures in the coming year that could affect their perspectives on taking two-sided financial risk. Specifically, one AIM ACO was considering splitting into two organizations, where one of the future organizations would take two-sided risk while the other continued in Track 1. Another organization had the opportunity to join its parent company's Next Generation ACO, where it would assume two-sided risk. A third AIM ACO was considering merging with a regional health system, leaving its future status as a Medicare ACO uncertain. During a separate interview with management company representatives, one noted it felt it was necessary to pool together beneficiaries from smaller ACOs into a large ACO to allow for greater risk pooling in order to accept two-sided risk.

Regulatory and programmatic uncertainty: A handful of organizations attributed their hesitation about taking on two-sided financial risk to CMS actions. AIM ACOs specifically cited concerns around CMS regulatory and programmatic factors. Interviewees from two AIM ACOs said that while they would consider taking two-sided financial risk in the future, their experience in the Shared Savings Program was that CMS changed the rules frequently, resulting in uncertainty for participant organizations. Representatives from AIM ACOs said the implications of mid-stream changes to methodology meant they would not be able to predict losses or save as needed. Therefore, these AIM ACOs expected to remain in Track 1 before their knowledge of Pathways to Success.

> *[It's like] betting on a horse in a horse race only to find that motorcycles have been allowed to enter the race so that betting on the horse [is] no longer likely to lead to a win.*

Interviewees from other AIM ACOs cited ambiguity about future changes to reimbursement methodologies for rural and CAHs as a key reason for avoiding two-sided risk. While 28 of the 45 AIM ACOs included at least one, if not several, inpatient prospective payment system hospitals with 100 or fewer beds or CAHs, not all such interviewees mentioned this concern.

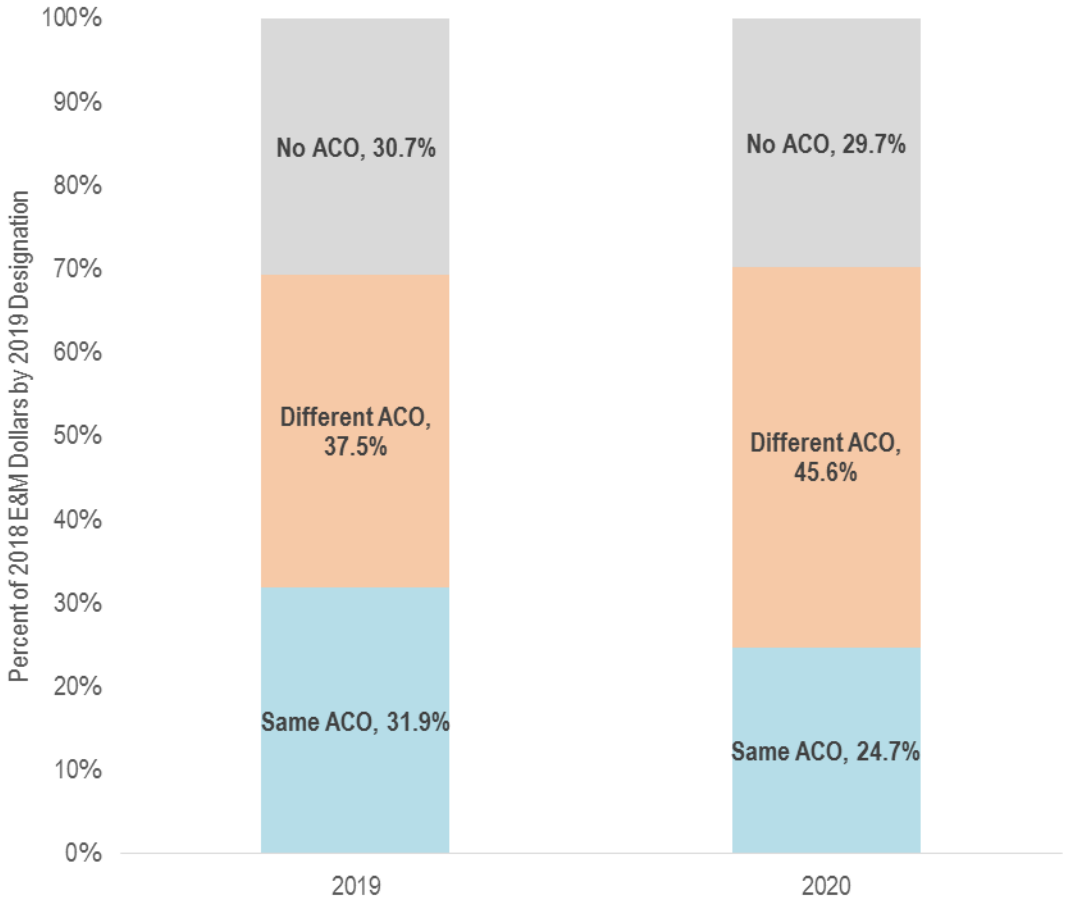
Other organizations pointed to CMS's internal delays distributing reports and funding as influential on their decision to avoid two-sided risk. Interviewees from AIM ACOs gave examples of backlogged distribution of reimbursement and ongoing lags in receiving Medicare reports and data beyond the six weeks after the start of a new quarter that organizations were told to expect.

2.3.3 Many Exiting AIM Participants Joined New ACOs by 2020

We learned from interviews with management companies that some participants of exiting ACOs planned to join other existing or new ACOs. We used data on 2019 and 2020 Shared Savings Program participation to examine where exiting ACO participants went after 2018. We measured changes in ACOs using primary care Medicare allowed charges by ACO participants, defined as using Tax Identification Numbers (TINs), in 2018. Primary care allowed charges are used by the Shared Savings Program to calculate beneficiaries' plurality of primary care for determining ACO attribution. This metric accounts for the size of ACO participants using the amount of care that affects ACO assignment.

Across the 45 AIM ACOs in existence at the end of 2018, we found that 31.9 percent of AIM ACO participants (measured in terms of primary care allowed charges in 2018) remained with the same AIM ACO in 2019, 37.5 percent moved to a different SSP ACO, and 30.7 percent were not affiliated with any ACO (**Exhibit 2-17**). In 2020, the percent of AIM ACO participants remaining with the same AIM ACOs fell to 24.7 percent, with 45.6 percent joining a different SSP ACO and 29.7 percent exiting the Shared Savings Program entirely.

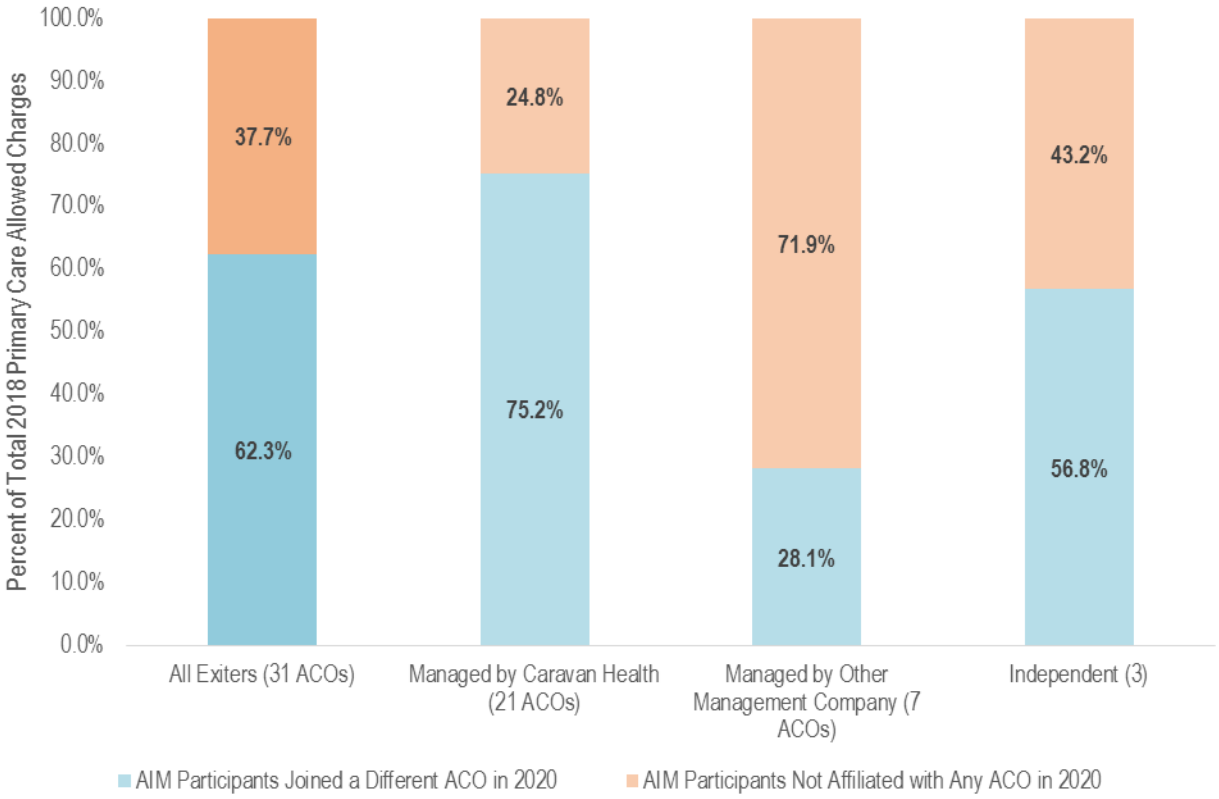
Exhibit 2-17. A Substantial Share of 2018 AIM ACO Participants Joined a Different ACO in 2019 or 2020



Note: Shows percentage of 2018 AIM ACO participants by their 2019 and 2020 Shared Savings Program statuses. AIM participants in 2018 that were found to be participating with another ACO in 2019 or 2020 were indicated as joining a different ACO in 2019 or 2020. AIM participants in 2018 that were found to be participating with the same ACO in 2019 or 2020 were indicated as remaining in the same ACO in 2019 or 2020. AIM participants that were not found to be participating with another SSP ACO in 2019 or 2020 were indicated as not affiliated with any ACO in 2019 or 2020.
Source: ACO Provider Research Identifiable Files for 2018 combined with Medicare claims data and Master Data Management Provider Files for 2019 and 2020 Shared Savings Program participation. We used Master Data Management Provider Files from July 1, 2019 to December 31, 2019 for determining 2019 participation since it was the first 6-month performance year under Pathways to Success.

Among the 31 AIM ACOs that exited by 2020, 62.3 percent of participants moved to another SSP ACO in 2020, as measured by primary care allowed charges, and 37.7 percent were not affiliated with any SSP ACO in 2020 (**Exhibit 2-18**). The distribution differed substantially for AIM ACOs that were managed by Caravan Health (which worked with 21 of the AIM ACOs) versus other management companies. Among the AIM ACOs in existence in 2018 that Caravan Health managed, 75.2 percent had joined another SSP ACO by 2020. In contrast, only 28.1 percent of the participants in ACOs managed by other management companies moved to another SSP ACO by 2020. Among the three independent AIM ACOs that exited at the end of 2018, over half of participants (56.8 percent) went to another SSP ACO by 2020 and 43.2 percent not affiliated with an SSP ACO in 2020.

Exhibit 2-18. Most Exiting Participants Joined Other ACOs in 2020



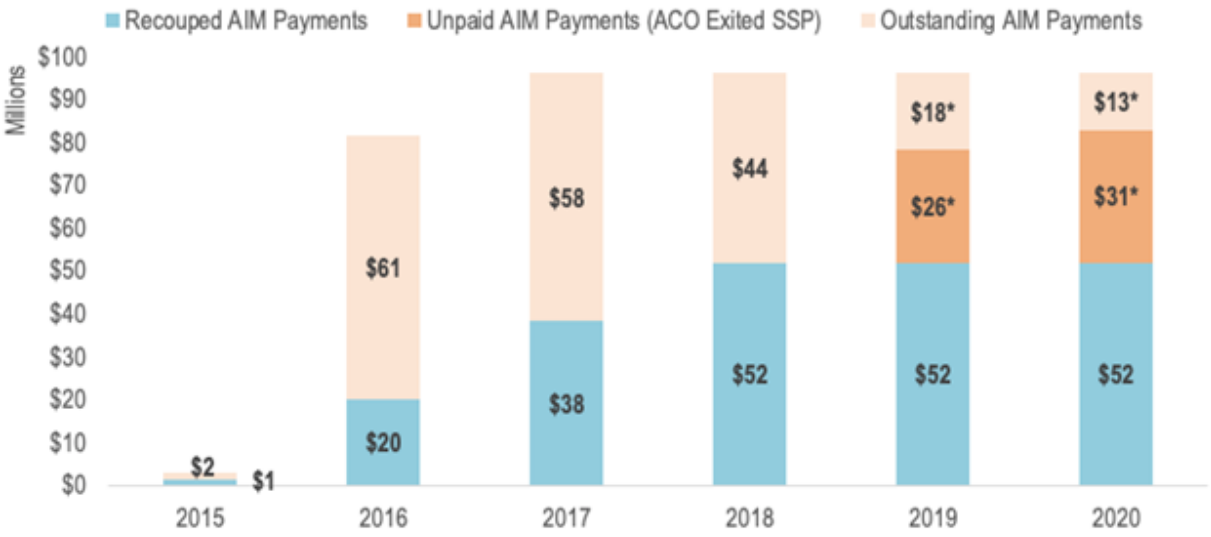
Note: Figure shows the percent of 2018 allowed charges for primary care visits (as defined by the Shared Savings Program for beneficiary assignment) for the 31 AIM ACOs that exited the program at the end by 2020. AIM participants in 2018 that were found to be participating with another ACO in 2020 were indicated as joining a different ACO in 2020. AIM participants that were not found to be participating with another SSP ACO in 2020 were indicated as not affiliated with any ACO in 2020.
Source: ACO Provider Research Identifiable Files for 2018 combined with Medicare claims data and Master Data Management Provider File for 2020 Shared Savings Program participation.

These findings show that greater than half of the AIM ACO participants continued to serve the same areas with a different ACO affiliation after exiting the Shared Savings Program in 2018. We earlier noted that exiting AIM ACOs tended to be more rural (**Chapter 2**), but it may be that some of these rural areas did not lose access to ACOs if participants simply joined other SSP ACOs. Future analyses should examine shifting ACO compositions over time.

2.4. More than Half of AIM Funds Were Recouped

In this section, we provide an accounting of AIM funds received by the AIM ACOs and their recoupment status. In total, CMS paid $96,184,250 to AIM ACOs. As of the end of 2018, $52,105,932 were returned (54.2 percent) and $44,078,318 (45.8 percent) were outstanding. ACO-level disbursement and recoupment of AIM funds is shown in **Appendix 2B**. As of 2020, $30,902,674 of the outstanding funds (70.1 percent) were owed by AIM ACOs that exited the Shared Savings Program and will not be recouped by CMS. The remaining $13,175,644 (29.9 percent) are outstanding AIM payments owed by AIM ACOs that remained in the program and may be recouped in later years. **Exhibit 2-19** shows the status of AIM payments and recoupments by year overall for all AIM ACOs. As of the writing of this report, 2019 and 2020 reconciliations were not yet available and thus additional funds may be recouped at the time of reconciliation.

Exhibit 2-19. Over Half of AIM Outstanding Payments Were Recouped by 2018



Note: We assumed repayments of AIM funds by all AIM Test 2 ACOs, whether they earned enough shared savings or not. The AIM Test 2 agreement required the return of all AIM payments.
*2019 and 2020 financial reconciliations are not available at the time of this report; some or all of the unpaid and outstanding payments may have been recouped during these two years.
Source: Shared Savings Program Public Use Files, 2015-2020; AIM funds expense reports from CMS.

Overall, 20 of the 47 AIM ACOs fully repaid AIM funds. This number includes the six AIM Test 2 ACOs that were required to return all AIM payments even if they did not earn enough savings for the payments to be recouped through shared savings. An additional eight AIM Test 1 ACOs partially paid back their AIM funds. The remaining 19 AIM ACOs (all Test 1) did not earn any shared savings during or after AIM and did not pay back any AIM funds as of the end of 2018.

3. What Were the Impacts of AIM on Cost, Utilization, and Quality?

In this chapter we report on AIM impacts measured in two main ways: the overall effect of AIM and the incremental effect of AIM over participation in the Shared Savings Program. The overall effects of AIM were estimated by comparing AIM ACO assigned beneficiaries to non-ACO FFS beneficiaries residing in the AIM ACOs' geographic markets. The incremental effects were estimated by comparing AIM ACOs to similar non-AIM ACOs participating in the Shared Savings Program. We examined impacts on a comprehensive set of spending, utilization, and quality performance measures across the three performance years.

Key findings on the impacts of AIM ACOs include:

- Overall, AIM Test 1 ACOs reduced per beneficiary per month (PBPM) total Medicare spending in each of the three AIM performance years. Estimated reductions were -$28.21 PBPM in PY1 (2016); -$36.94 PBPM in PY2 (2017); and -$38.73 in PY3 (2018). All estimates were statistically significant at the 5 percent level.
  - These reductions translated to a net aggregate reduction in spending by Medicare of $381.5M across the three AIM performance years after accounting for Medicare's payment of AIM funds and financial earned shared savings.
  - The estimated reductions in total Medicare spending were driven by reductions in utilization, most notably decreases in acute hospitalizations, emergency department visits, and days in skilled nursing facilities. These reductions were consistent across the performance years.
- AIM Test 1 ACOs decreased total Medicare spending and related utilization relative to similar non-AIM SSP ACOs that did not receive AIM funds, on average in all performance years. Impacts of AIM Test 2 ACOs on total Medicare spending and utilization relative to non-AIM SSP ACOs were variable and not consistently positive or negative across the three performance years. Comparisons to non-AIM SSP ACOs to obtain incremental effects of AIM were should not be interpreted causally. Observed differences in beneficiary and geographic characteristics between AIM and non-AIM SP ACOs suggested that ACOs may have differed in ways that could affect their ability to reduce Medicare spending and utilization.
- AIM ACOs achieved reductions in total Medicare spending without sacrificing quality of patient or caregiver experience and quality of care. We found that AIM ACOs, even those reducing total Medicare spending, hospitalizations, and emergency department visits, maintained the same level of care quality provided to FFS beneficiaries not in ACOs.

3.1. Data and Methods

As discussed in **Chapter 1.2.2**, we used different comparison groups to estimate AIM impacts depending on the research question of interest. To estimate the overall impact of AIM, we compared AIM ACO assigned beneficiaries to eligible non-ACO FFS beneficiaries residing in the ACOs' markets. This approach was applied only to AIM Test 1 ACOs since they were new to the Shared Savings Program. We applied a difference-in-differences (DID) framework to estimate the differential change in spending and utilization outcomes between the baseline and each performance year among beneficiaries assigned to AIM ACOs relative to the comparison group. The DID method accounted for constant differences between AIM ACO assigned and comparison beneficiaries. Using a consistent DID regression approach, we calculated separate DID estimates for each performance measure for each AIM Test 1 ACO. We also generated DID estimates for each performance measure pooled across all AIM Test 1 ACOs in a given performance year.

For the 41 AIM Test 1 ACOs, the baseline was 2013 to 2015, and the three performance years spanned 2016 to 2018. For each performance year, the ACO baseline comprised beneficiaries who would have

been assigned to the providers participating in the performance year. To account for potential changes that do not occur at a constant rate over time, we controlled for beneficiary-level demographic and clinical factors, as well as market-level factors and market-specific time trends, using weighting and linear regression adjustment. Standard errors were clustered at the market level (see **Appendix 3A** for more detail on validity testing).

We aggregated pooled estimates of the differential change in total spending to obtain an estimate of model-level changes in spending in each performance year. Aggregate estimates accounted for shared savings paid to AIM ACOs in each year, as well as prepaid shared savings that were not recouped during the three performance years (see **Appendix 3B** for detail on the net savings calculations).

To estimate the incremental effect of AIM, we compared all AIM ACOs to a set of similar non-AIM SSP ACOs. The methodology for selecting similar SSP ACOs and the analytic approaches used are described in **Chapter 3.3** below. Lastly, we examined the effect of AIM ACOs on patient or caregiver experience and quality of care using beneficiary-level data on Consumer Assessment of Healthcare Providers and Systems (CAHPS) and Shared Savings Program ACO-level quality measures.[19] These measures and the analytic approaches are described in **Chapter 3.4**, below.

3.2. AIM Test 1 ACOs Impacts on Spending and Utilization Compared to Non-ACO FFS Beneficiaries

We estimated that AIM ACOs reduced total Medicare spending of assigned beneficiaries relative to non-FFS comparison beneficiaries residing in the ACOs' markets in all performance years, on average (**Exhibit 3-1**). Estimates ranged from -$28.21 PBPM (95 percent confidence interval [CI] from -$41.53 to -$14.90) in PY1 to -$38.73 PBPM (95 percent CI from -$53.43 to -$24.02) in PY3. Although impact estimates increased in magnitude over time, the 95 percent confidence intervals for each performance year overlapped with each other and we could not conclude that the impacts of AIM grew over time. Testing of the parallel trends assumption indicated that our pooled, model-level estimates were valid (**Appendix 3A)** and results were also robust to the statistical specification selected for regression analysis (**Appendix 3C**).

Exhibit 3-1. AIM ACOs Reduced Spending More than the Comparison Group between Baseline and Performance Years

	AIM			Comparison			Difference-in-Differences
	Performance	Baseline	Difference (Perf – Base)	Performance	Baseline	Difference (Perf – Base)	
PY1 (2016)	$985.34	$1,031.28	-$45.94 (-62.86,-29.02)	$997.84	$1,015.56	-$17.73 (-28.37, -7.08)	-$28.21 (-41.53, -14.90)
PY2 (2017)	$965.15	$1,037.31	-$72.16 (-91.9, -52.4)	$997.38	$1,032.60	-$35.21 (-51.3, -19.2)	-$36.94 (-49.33, -24.56)
PY3 (2018)	$929.94	$973.89	-$43.95 (-65.0, -22.9)	955.49	960.71	-$5.22 (-21.1, 10.6)	-$38.73 (-53.43, -24.02)

Note: Findings are for 41 AIM Test 1 ACOs. DID impact findings estimated from comparing AIM Test 1 ACO assigned beneficiaries to non-ACO FFS beneficiaries residing in the AIM ACOs' markets. Performance Years 1-3 are 2016-2018, respectively. The baseline period is 2013 to 2015. 95% confidence intervals are shown in parentheses. PY = Performance Year.
Source: ACO Provider Research Identifiable Files for 2016-2018, and 2013-2018 Medicare claims and enrollment data.

[19] https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/CAHPS/ACO

CAHPS for ACOs Survey website

The estimated PBPM reductions to Medicare spending translated to substantial total reductions to Medicare spending over the three performance years, even after accounting for earned shared savings payments and unrecouped AIM funds. After netting out earned shared savings and unrecouped AIM funds, we estimated that AIM ACOs reduced Medicare spending by -$108.4M (2.3 percent) in PY1; -$153.4M (3.0 percent) in PY2; and -$119.7M (2.3 percent) in PY3 (**Exhibit 3-2**). Total reductions in Medicare spending amounted to $381.5M over the three years of AIM, equivalent to roughly 7.6 percent of baseline spending.

Exhibit 3-2. AIM Test 1 ACOs Reduced Total Medicare Spending in All Performance Years

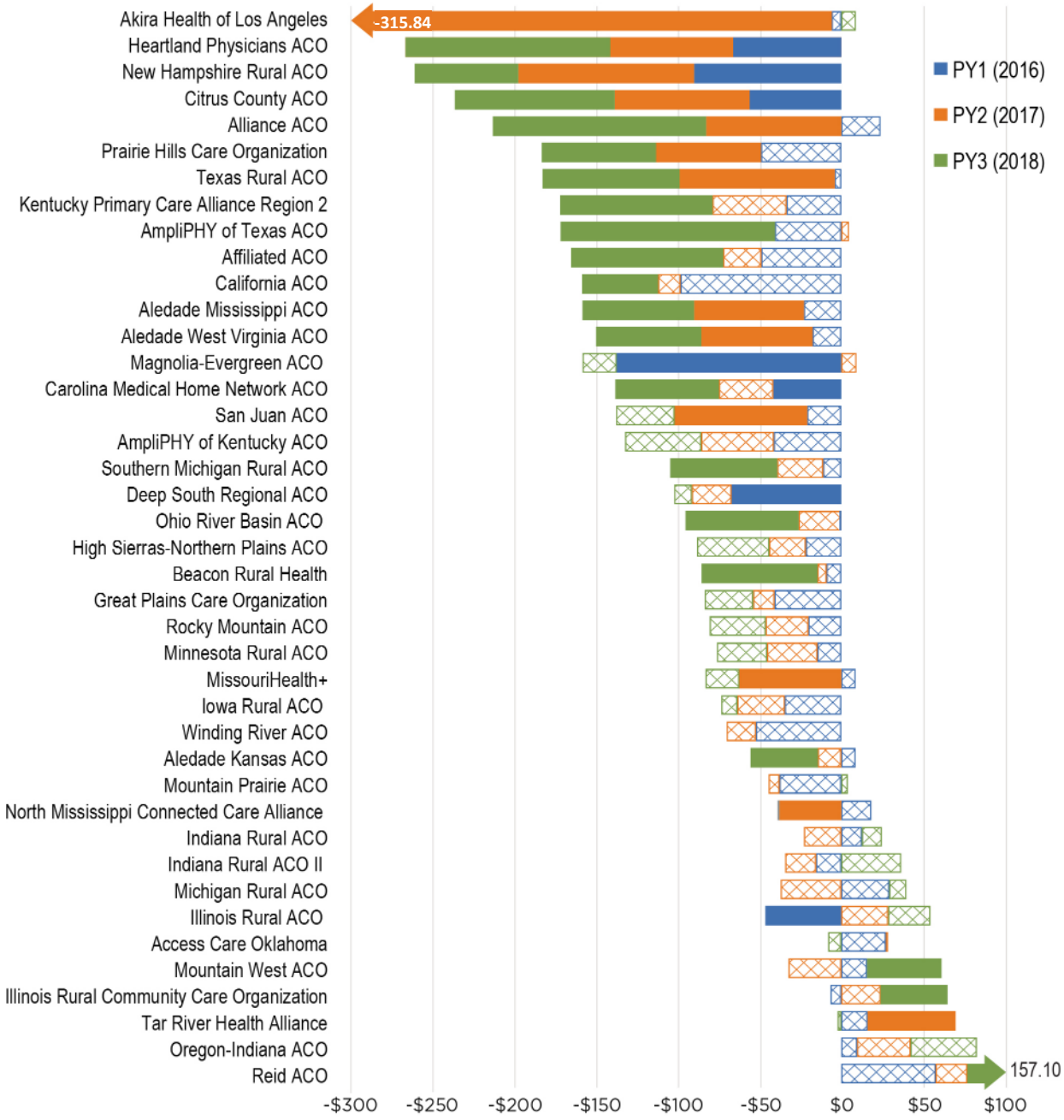
Performance Year (PY)	Aggregate Spending (Millions) [b]	Percent Savings of Base Spending [c]	Net Savings to Medicare Program (Millions) [d]	Percent Net Savings to Medicare Program[e]
PY1[a] (2016)	-$131.0 (-192.7 to -69.2)	2.8% (4.1 to 1.5)	-$108.4 (-170.2 to -46.6)	2.3% (0.1 to 3.6)
PY2 (2017)	-$187.7 (-250.5 to -125.0)	3.5% (4.0 to 2.5)	-$153.4 (-216.2 to -90.6)	3.0% (1.8 to 4.0)
PY3 (2018)	-$207.7 (-286.6 to -128.8)	4.0% (5.5 to 2.5)	-$119.7 (-198.6 to -40.8)	2.3% (0.8 to 3.8)

Note: Findings are for 41 AIM Test 1 ACOs. DID impact findings estimated from comparing AIM Test 1 ACO assigned beneficiaries to non-ACO FFS beneficiaries residing in the AIM ACOs' markets. Performance Years 1-3 are 2016-2018, respectively. The baseline period is 2013 to 2015. 95% confidence intervals are shown in parentheses.
[a] Pooled estimates for PY1 differ slightly from those reported in the Report on AIM Impact in the First Performance Year (2018) because they were estimated from a pooled model rather than calculated as the weighted average of ACO-level estimates, as was done in that report.
[b] Aggregate = total reductions over all beneficiaries and months.
[c] Base spending represents total Medicare spending by AIM ACO beneficiaries during the baseline period net of the change in total Medicare spending of non-ACO FFS beneficiaries between baseline and performance years in ACO markets.
[d] Net savings to Medicare program is calculated by subtracting earned shared savings from reductions in aggregate spending. Outstanding AIM funds were also subtracted from reductions in aggregate spending in PY3 (see Appendix 3B).
[e] Percent relative to base spending as defined in [c] above.
Source: ACO Provider Research Identifiable Files for 2016-2018 and 2013-2018 Medicare claims data.

Separate ACO-level impacts of AIM on total Medicare spending for each performance year are depicted in **Exhibit 3-3** and support our aggregate estimates. Solid bars indicate statistically significant findings at the 5 percent level while patterned bars indicate estimates that were not statistically significant at the 5 percent level. We estimated reduced Medicare spending in at least one performance year for 39 of the 41 AIM Test 1 ACOs, and in all performance years for 22 ACOs. We estimated increased Medicare spending in at least one performance year for 19 ACOs, but only two of these AIM ACOs had estimated increases in Medicare spending in all three performance years. **Appendix 3D** lists the estimated AIM Test 1 impacts on Medicare spending by AIM ACO in PY3 (2018); the equivalent findings for prior years can be found in the prior two annual AIM evaluation reports.[20]

[20] The evaluation reports of AIM's first and second performance years can be found here: https://innovation.cms.gov/initiatives/ACO-investment-model/

Exhibit 3-3. The Majority of AIM Test 1 AIM ACOs Decreased per Beneficiary per Month Total Medicare Spending in all AIM Performance Years



Note: Solid bars denote statistically significant findings at the 5 percent level. Results were estimated from applying a DID approach comparing AIM Test 1 ACO assigned beneficiaries to non-ACO FFS beneficiaries residing in the AIM ACOs' markets. Performance Years 1-3 are 2016-2018, respectively. The baseline period is 2013 to 2015.
Source: ACO Provider Research Identifiable Files for 2016-2018 and 2013-2018 Medicare claims data.

3.2.1 AIM ACOs reduced most components of Medicare spending and utilization

We estimated that AIM Test 1 ACOs decreased the use of the costly medical care, such as inpatient hospitalizations, emergency department visits, and post-acute skilled nursing facility care (**Exhibit 3-4**). We found that overall physician spending remained unchanged, though components of physician services,

particularly the number of tests, increased.[21] We did not estimate a statistically significant effect of AIM on mortality in any performance year. **Exhibit 3-4** presents the average impacts of AIM Test 1 ACOs on several performance measures from the pooled model, separately for each performance year.

Exhibit 3-4. AIM Test 1 ACOs Reduced Hospitalizations, SNF Use, and Emergency Department Visits in all Performance Years

	PY1 (2016)		PY2 (2017)		PY3 (2018)	
Outcome (Scale)	Average Point Estimate [a]	Percentage Change from Baseline [b]	Average Point Estimate [a]	Percentage Change from Baseline [b]	Average Point Estimate [a]	Percentage Change from Baseline [b]
Medicare payments ($ PBPM)						
Total	-$28.21***	-2.8%	-$36.94***	-3.5%	-$38.73***	-4.0%
Acute inpatient	-$7.98***	-2.4%	-$11.92**	-3.4%	-$13.63***	-4.0%
Physician services	$1.50	0.9%	-$0.47	-0.2%	-$1.85	-1.0%
Hospital outpatient and ambulatory surgery centers	-$9.18*	-4.3%	-$8.88***	-4.4%	-$8.71***	-3.7%
Skilled nursing facility	-$6.24***	-7.2%	-$6.19***	-6.6%	-$5.74**	-7.8%
Home health	-$1.86***	-3.7%	-$2.07***	-3.7%	-$3.53***	-8.2%
Durable medical equipment	-$0.24	-1.4%	-$0.18	-0.9%	-$0.08	-0.4%
Inpatient utilization						
Any acute hospitalization (% points)	-0.5***	-2.6%	-0.4**	-1.9%	-0.5***	-2.3%
# Acute hospitalizations	-0.01***	-2.8%	-0.01***	-2.9%	-0.01***	-3.8%
All-cause 30-day readmission (% points)	-0.1**	-4.0%	-0.1***	-4.1%	-0.1***	-4.4%
Any ambulatory sensitive condition admission (% points)	-0.2***	-3.5%	-0.1	-2.4%	-0.1	-2.8%
Emergency department and observation utilization						
Any ED visit not resulting in hospital admission (% points)	-0.4**	-1.5%	-0.5***	-1.9%	-0.7***	-2.9%
Any ED visit resulting in hospital admission (% points)	-0.1	-1.1%	-0.3***	-2.3%	-0.3*	-2.5%
Any observation stays (inpatient or outpatient) (% points)	-0.2	-2.5%	-0.6***	-3.1%	-0.5***	-5.9%
Skilled nursing facility and hospice utilization						
# SNF days	-0.1**	-5.8%	-0.1***	-5.3%	-0.1*	-5.3%
Any hospice use (% points)	-0.1***	-5.1%	-0.1	-6.0%	-0.1	-4.3%
Physician services utilization						
# Office-based E&M visits	0.1	1.4%	0.0	0.2%	0.1	0.8%
# Imaging events	0.0	-1.1%	0.1	-1.0%	-0.1*	-2.1%
# Procedures	0.0	0.0%	0.0	2.0%	0.1	2.2%

[21] We note that tests could also be performed in the outpatient setting, which would not be included in the physician services measure of tests. Upon further investigation, we did not find that increases in the use of tests in the physician setting were offset by decreases in their use in the outpatient setting across AIM Test 1 ACOs in general, though we did find that pattern among some individual AIM Test 1 ACOs.

Outcome (Scale)	PY1 (2016)		PY2 (2017)		PY3 (2018)	
	Average Point Estimate [a]	Percentage Change from Baseline [b]	Average Point Estimate [a]	Percentage Change from Baseline [b]	Average Point Estimate [a]	Percentage Change from Baseline [b]
# Tests	0.7***	8.9%	0.8***	6.0%	1.0***	10.5%
Mortality (% points)	-0.1*	-2.9*	0.0	-0.2%	0.0	-0.8%

Note: Findings are for 41 AIM Test 1 ACOs. DID impact findings were estimated by comparing AIM Test 1 ACO assigned beneficiaries to non-ACO FFS beneficiaries residing in the AIM ACOs' markets. Performance Years 1-3 are 2016-2018, respectively, and the baseline period is 2013 to 2015 for all performance years. PBPM is per beneficiary per month; ED is emergency department; SNF is skilled nursing facility; E&M is evaluation and management.
[a] For non-payment measures denoted by (%), point estimates represent percentage points. Negative point estimates represent decreases in the performance measure when comparing AIM ACOs to their market comparison groups. Positive point estimates represent increases in the performance measure when comparing AIM ACOs to their market comparison groups.
[b] Base values represents total Medicare spending or use by AIM ACO beneficiaries during the baseline period net of the change in total Medicare spending of non-ACO FFS beneficiaries between baseline and performance years in ACO markets.
*,**,*** Indicates statistical significance at the 10, 5, and 1 percent levels, respectively.
Source: ACO Provider Research Identifiable Files for 2016-2018 and Medicare claims data from 2013-2018.

Since large ACOs can dominate pooled estimates, **Exhibit 3-5** also provides the number of ACOs (out of 41) with negative estimates (reductions), the number with positive estimates (increases), and the number of ACOs that were statistically significant at the 5 percent level in the corresponding direction, for each performance year. Consistent patterns in the direction of impacts across the AIM ACOs provide important insights on the true impact of AIM. We show Performance Year 3 estimates for each AIM Test 1 ACO in **Appendix 3D**. Overall, we found that the direction, magnitude, and significance of the impact estimates at the ACO level were consistent with the pooled results, indicating that pooled results were not driven by a small subset of ACOs.

Exhibit 3-5. AIM Test 1 ACO-level Estimates were Consistent with Pooled Results in Patterns of Reduced Spending and Utilization in all Performance Years

Outcome (Scale)	PY1 (2016)		PY2 (2017)		PY3 (2018)	
	# ACOs with Decreases (# ACOs p<0.05)	# ACOs with Increases (# ACOs p<0.05)	# ACOs with Decreases (# ACOs p<0.05)	# ACOs with Increases (# ACOs p<0.05)	# ACOs with Decreases (# ACOs p<0.05)	# ACOs with Increases (# ACOs p<0.05)
Medicare payments ($ PBPM)						
Total	30 (8)	11 (0)	33 (12)	8 (1)	30 (17)	11 (3)
Acute inpatient	28 (2)	13 (0)	30 (11)	11 (0)	29 (11)	12 (1)
Physician services	20 (5)	21 (6)	21 (6)	20 (6)	27 (13)	14 (6)
Hospital outpatient and ambulatory surgery centers	29 (11)	12 (0)	26 (14)	15 (0)	26 (16)	15 (3)
Skilled nursing facility	24 (9)	17 (3)	30 (12)	11 (2)	27 (11)	14 (3)
Home health	27 (10)	14 (0)	28 (12)	13 (3)	26 (14)	15 (3)
Durable medical equipment	21 (10)	20 (2)	27 (9)	14 (2)	22 (6)	19 (5)
Inpatient utilization						
Any acute hospitalization (% points)	30 (8)	11 (0)	29 (10)	12 (0)	26 (11)	15 (1)
# Acute hospitalizations	29 (4)	12 (0)	28 (10)	13 (0)	30 (11)	11 (2)
All-cause 30-day readmission (% points)	28 (5)	13 (0)	30 (7)	11 (0)	30 (6)	11 (1)
Any ambulatory sensitive condition admission (% points)	25 (3)	16 (0)	22 (7)	19 (2)	25 (6)	16 (2)

Outcome (Scale)	PY1 (2016)		PY2 (2017)		PY3 (2018)	
	# ACOs with Decreases (# ACOs p<0.05)	# ACOs with Increases (# ACOs p<0.05)	# ACOs with Decreases (# ACOs p<0.05)	# ACOs with Increases (# ACOs p<0.05)	# ACOs with Decreases (# ACOs p<0.05)	# ACOs with Increases (# ACOs p<0.05)
Emergency department and observation utilization						
Any ED visit not resulting in hospital admission (% points)	28 (6)	13 (0)	29 (13)	12 (1)	31 (13)	10 (1)
Any ED visit resulting in hospital admission (% points)	26 (7)	15 (5)	23 (8)	18 (4)	22 (10)	19 (5)
Any observation stays (inpatient or outpatient) (% points)	25 (12)	16 (3)	32 (13)	9 (1)	31 (15)	10 (4)
Skilled nursing facility and hospice utilization						
# SNF days	21 (8)	20 (4)	33 (10)	8 (2)	26 (9)	15 (5)
Any hospice use (% points)	26 (8)	15 (1)	26 (5)	15 (1)	26 (11)	15 (2)
Physician services utilization						
# Office-based E&M visits	14 (8)	27 (18)	18 (12)	23 (15)	22 (17)	19 (10)
# Imaging events	24 (5)	17 (4)	26 (16)	15 (7)	25 (19)	16 (7)
# Procedures	25 (9)	16 (8)	17 (8)	24 (10)	24 (17)	17 (12)
# Tests	14 (8)	27 (24)	16 (9)	25 (20)	11 (8)	30 (19)
Mortality (% points)	25 (6)	16 (2)	20 (2)	21 (1)	23 (5)	18 (2)

Note: Count of ACOs with negative (decreases) or positive (increases) point estimates. Counts of ACOs with statistically significant estimates at the 5 percent level are shown in parentheses. Findings are for 41 AIM Test 1 ACOs. DID impact findings were estimated by comparing AIM Test 1 ACO assigned beneficiaries to non-ACO FFS beneficiaries residing in the AIM ACOs' markets. Performance Years 1-3 are 2016-2018, respectively, and the baseline period is 2013 to 2015 for all performance years. PBPM is per beneficiary per month; ED is emergency department; SNF is skilled nursing facility; E&M is evaluation and management.
Source: ACO Provider Research Identifiable Files for 2016-2018 and Medicare claims data from 2013-2018.

3.2.2 Limitations

The analyses presented in this chapter were carefully designed and implemented, and we consider them to be robust reflections of the impacts of AIM. Nonetheless, there were a variety of considerations and limitations that should be kept in mind when weighing the evidence and drawing conclusions. These included:

- There was variation in results across the AIM Test 1 ACOs, and the patterns discussed here may not hold for a particular ACO.
- As with any quasi-experimental evaluation design, the rigor of the comparison group plays a critical role in determining the impacts. Our design rests on the assumption of parallel trends between the ACO and comparison groups in the absence of the intervention. Although all key findings passed parallel trends testing when pooling across all AIM ACOs, not all individual ACOs passed in every year: ACO-level estimates should be interpreted with caution (see **Appendix 3A**).
- The Shared Savings Program assignment methodology changed slightly between PY1 (2016) and PY2 (2017) in that primary care evaluation and management (E&M) visits occurring in a nursing home no longer counted towards assignment. As a result, the analytic population had fewer beneficiaries living in long-term institutions in PY2 and later compared to PY1. In our impact analyses for each year, we used the assignment rules in effect during that year to identify assignment-eligible beneficiaries for both the ACO and comparison groups. Thus, the results in each performance

year reflected the estimated impacts conditional on the rules and population at the time, and as a result, PY1 was not perfectly comparable to PY2 and PY3.

3.3. Incremental Effect of AIM on Medicare Spending and Utilization Compared to non-AIM SSP ACOs

To compare AIM ACOs to non-AIM SSP ACOs, we selected similar non-AIM SSP ACOs that:

- Started the Shared Savings Program in the same year as the AIM ACO
- Participated in Track 1 (no down-side financial risk)
- Did not participate in the AP model
- Were smaller in size (fewer than 15,000 assigned beneficiaries in the SSP start year for the AIM Test 1 comparison group, and fewer than 10,000 assigned beneficiaries in the SSP start year for the AIM Test 2 comparison group).

We applied separate approaches to comparing AIM ACOs to similar non-AIM SSP ACOs depending on the type of AIM ACO; results for both analyses should not be interpreted causally:

- **AIM Test 1 ACO analyses:** We applied the same DID framework described above to each similar non-AIM SSP ACO by comparing beneficiaries assigned to the selected non-AIM SSP ACOs to non-ACO FFS beneficiaries located in the ACOs' markets during the performance and baseline periods to account for market-related effects on ACO performance. The resulting impact estimates were aggregated across the non-AIM SSP ACOs in the same start year and compared to the impact estimates of the corresponding AIM Test 1 ACO. Because the comparison is of two DID estimates, we do not calculate confidence intervals around the net point estimate.
- **AIM Test 2 ACO analyses:** AIM Test 2 ACOs had experience in the Shared Savings Program prior to joining AIM. For these ACOs, we compared relative changes in performance from the time when these ACOs started AIM to similar non-AIM SSP ACOs during the same time. We used their prior Shared Savings Program participation as a baseline period for comparing to similar non-AIM SSP ACOs. Thus, we were able to directly apply a DID approach that compares beneficiaries assigned to AIM and beneficiaries assigned to similar non-AIM SSP ACOs in the AIM performance years and a pre-AIM Shared Savings Program baseline period. It is important to note that the comparison with non-AIM SSP ACOs is imperfect in that AIM ACOs are being compared with ACOs that may differ in ways that cannot be fully observed or accounted for in the analysis.

3.3.1 Selecting similar non-AIM SSP ACOs

In PY1 (2016), we selected 89 non-AIM SSP ACOs that were similar to AIM Test 1 ACOs based on the criteria described in the methods above (45 began the Shared Savings program in 2015 and 44 began in 2016), as shown in **Exhibit 3-6**. In PY2 (2017), 77 of the 89 ACOs remained in the Shared Savings Program, and 70 remained in PY3 (2018). A total of 115 non-AIM ACOs with 2015 and 2016 Shared Savings Program start years were still participating in the Shared Savings Program in 2018 (see last column of **Exhibit 3-6**).

For AIM Test 2 ACOs, we identified 71 non-AIM SSP ACOs in PY1, of which 56 remained in PY2, and 49 in PY3 (**Exhibit 3-6**).[22] PY1 is 2015 or 2016 depending on the AIM start date of AIM Test 2 ACO (see **Exhibit 1-6**). The list of non-AIM SSP ACOs used for comparison is reported in **Appendix 3E.**

[22] The decrease in comparison non-AIM SSP ACOs between PY1 and PY2 resulted from exits from the Shared Saving Program as well as excluding SSP ACOs that were similar to Baroma Healthcare International, an AIM ACO that exited at the end of PY1 and the only AIM ACO starting the Shared Savings Program in 2012.

Exhibit 3-6. Number of Comparison Non-AIM SSP ACOs

AIM	SSP Start Year	AIM ACOs	Similar Non-AIM SSP ACOs PY1	Similar Non-AIM SSP ACOs PY2	Similar Non-AIM SSP ACOs PY3	All Non-AIM SSP ACOs in 2018
Test 1	2015	5	45	37	31	60
	2016	36	44	40	39	55
	Total	41	89	77	70	115
Test 2	2012	1	5	0	0	58
	2013	3	14	14	13	47
	2014	2	52	42	36	71
	Total	6	71	56	49	176

Note: Similar non-AIM SSP ACOs were selected based on Shared Savings Program start year, number of assigned beneficiaries in PY1, initial participation in Track 1, and no prior participation in the AP ACO Model. For AIM Test 1 ACOs, PY1-PY3 represented 2016-2018. For AIM Test 2 ACOs that began AIM in 2015, PY1-PY3 represented 2015-2017; for AIM Test 2 ACOs that began AIM in 2016, PY1-PY3 represented 2016-2018. Two AIM Test 2 ACOs exited AIM and the Shared Savings Program at the end of 2015; they started the Shared Savings Program in 2012 and 2013. Thus, the selected similar non-AIM SSP ACOs starting the Shared Savings Program in 2012 were excluded in PYs 2 and 3 for AIM Test 2 ACOs.
Source: Shared Savings Program Public Use Files, 2015-2018.

We compared ACO assigned beneficiaries' characteristics between AIM ACOs and their selected similar SSP ACOs by averaging across ACOs in each performance year (**Exhibit 3-7** and **3-8**). AIM Test 1 ACOs had fewer practitioners, on average, but included more facility-based providers (FQHCs, RHCs, and eligible hospitals), as shown in **Exhibit 3-7**. The two groups are broadly similar at the beneficiary level, although non-AIM SSP ACOs had more black beneficiaries, fewer Medicaid dual-eligible beneficiaries, and had slightly higher spending at baseline. AIM ACOs had slightly larger numbers of assigned beneficiaries and were substantially more likely to serve patients located in rural areas or in areas designated as Health Professional Shortage Areas (HPSAs). AIM and non-AIM SSP ACOs were similar in rates of earning shared savings. The findings were consistent across performance years.

Exhibit 3-7. AIM Test 1 and Selected Non-AIM SSP ACOs Differed in Composition and Location but Served Similar Beneficiaries

	PY1 (2016)		PY2 (2017)		PY3 (2018)	
	AIM ACOs (N=41)	Non-AIM SSP ACOs (N=89)	AIM ACOs (N=41)	Non-AIM SSP ACOs (N=77)	AIM ACOs (N=41)	Non-AIM SSP ACOs (N=70)
ACO participants [a]						
Number of practitioners	92.9	129.5	101.2	128.8	112.7	143.7
Percent primary care practitioners	86.7%	82.0%	85.8%	83.4%	86.2%	83.3%
Percent specialists	13.3%	18.0%	14.2%	16.6%	13.8%	16.7%
Number of facility-based providers	13.9	3.3	16.6	3.6	16.7	3.7
Beneficiaries [b]						
Number of assigned beneficiaries	9,439	8,925	10,329	9,019	10,903	9,428
Female	56.7%	57.1%	56.5%	56.9%	56.2%	56.7%
Average age	71	72	71	72	71	72
White	87.9%	81.4%	87.6%	81.1%	87.3%	82.8%
Black	6.1%	10.2%	6.2%	10.6%	5.9%	10.1%
Hispanic	2.9%	3.9%	3.0%	3.7%	3.3%	3.6%
Other race	3.1%	4.4%	3.2%	4.5%	3.5%	3.5%
Disabled	26.0%	23.5%	25.6%	23.3%	25.3%	22.2%
End Stage Renal Disease (ESRD) Medicare entitlement	0.9%	1.1%	0.9%	1.0%	0.9%	1.0%
Medicare/Medicaid dual eligibility	23.3%	20.3%	22.5%	19.6%	21.8%	17.4%
Average HCC risk score	0.99	1.02	1.01	1.05	0.95	0.98
Number of chronic conditions	2.3	2.5	2.4	2.5	2.4	2.6
Mean PBPM Medicare payment during baseline	$916	$944	$918	$956	$921	$958
Geographic [c]						
ACO rurality	75.9%	24.1%	72.6%	25.1%	70.6%	27.0%
HPSA primary care	15.1	7.1%	15.4%	7.3%	15.5%	7.3%
HPSA mental health	71.3%	33.8%	71.6%	33.8%	71.0%	30.5%
Financial results [d]						
# ACOs earned shared savings	10 (24.4%)	19 (21.3%)	12 (29.3%)	20 (26.0%)	15 (36.6%)	22 (31.4%)

Note: Figures are unweighted averages across the number of ACOs listed in each column header.
[a] Includes only ACO participants eligible for beneficiary assignment.
[b] The baseline period for per beneficiary per month (PBPM) Medicare payment is 2013 to 2015.
[c] ACO rurality is measured by the percentage of an ACO's assigned beneficiaries living in areas with RUCA codes ≥ 4. ACO HPSA percentage is measured by the percentage of an ACO's assigned beneficiaries living in areas designated as mental health or primary care health professional shortage areas.
[d] Shared Savings Program Public Use Files, 2016-2018.

The analogous information for AIM Test 2 ACOs and their selected non-AIM SSP ACOs is shown in **Exhibit 3-8**. AIM Test 2 ACOs had substantially fewer practitioners than selected non-AIM SSP ACOs and did not have facility-based providers in any year. Beneficiary characteristics generally differed between the two groups of ACOs. AIM Test 2 ACOs also had substantially fewer assigned beneficiaries and were less likely to be located in a rural ZIP code or HPSA.

Exhibit 3-8. AIM Test 2 ACOs Were Smaller and Served More Vulnerable Beneficiaries Compared to Selected Non-AIM SSP ACOs

	PY1		PY2		PY3	
	AIM ACOs (N=6)	Non-AIM SSP ACOs (N=71)	AIM ACOs (N=4)	Non-AIM SSP ACOs (N=56)	AIM ACOs (N=4)	Non-AIM SSP ACOs (N=49)
ACO participants [a]						
Number of practitioners	66.7	112.2	74.0	123.8	75.8	171.1
Percent primary care practitioners	76.7%	78.9%	85.6%	79.2%	84.5%	81.6%
Percent specialists	23.3%	21.1%	14.4%	20.8%	15.5%	18.4%
Number of facility-based providers	0.0	6.3	0.0	7.4	0.0	8.6
Beneficiaries [b]						
Number of assigned beneficiaries	5,753	9,204	6,204	10,041	6,465	10,850
Female	59.6%	57.8%	58.1%	57.6%	57.9%	57.6%
Average age	72	71	72	71	73	71
White	49.7%	72.7%	49.4%	72.3%	48.3%	72.6%
Black	14.8%	12.8%	16.6%	13.6%	14.8%	13.5%
Hispanic	31.1%	8.2%	27.9%	8.5%	30.6%	8.0%
Other race	4.4%	6.2%	6.1%	5.6%	6.3%	5.9%
Disabled	23.2%	23.7%	23.3%	24.5%	22.3%	24.1%
ESRD Medicare entitlement	2.1%	1.3%	2.2%	1.3%	2.4%	1.5%
Medicare/Medicaid dual eligibility	36.6%	23.7%	31.8%	23.6%	33.2%	23.3%
Average HCC risk score	1.17	1.04	1.14	1.06	1.12	1.04
Number of chronic conditions	2.8	2.5	2.7	2.5	2.9	2.6
Mean PBPM Medicare payment during baseline	$1,322	$1,044	$1,107	$961	$1071	$950
Geographic [c]						
ACO rurality	1.0%	12.5%	1.0%	10.5%	1.2%	10.6%
HPSA primary care	0.7%	6.1%	0.6%	7.3%	0.6%	8.3%
HPSA mental health	39.6%	28.1%	34.3%	29.2%	33.3%	28.4%
Financial results [d]						
# ACOs earned shared savings	4 (66.7%)	28 (39.4%)	2 (50.0%)	24 (43.6%)	3 (75.0%)	21 (42.9%)

Note: Figures are unweighted averages across the number of ACOs listed in each column header. For AIM Test 2 ACOs that began AIM in 2015, PY1-PY3 represented 2015 to 2017; for AIM Test 2 ACOs that began AIM in 2016, PY1-PY3 represented 2016-2018.
[a] Includes only ACO participants eligible for beneficiary assignment.
[b] The baseline period for per beneficiary per month (PBPM) Medicare payment is the two years prior to the start of AIM for each ACO.
[c] ACO rurality is measured by the percentage of an ACO's assigned beneficiaries living in areas with RUCA codes ≥ 4. ACO HPSA percentage is measured by the percentage of an ACO's assigned beneficiaries living in areas designated as mental health or primary care health professional shortage areas.
[d] Shared Savings Program Public Use Files, 2015-2018.

Given these substantial differences between the AIM and non-AIM SSP groups in terms of participant, beneficiary, and geographic composition, as well as financial results, we used additional balancing techniques to adjust for these differences in beneficiary and geographic characteristics for both Test 1 and Test 2 ACOs, as further described in **Appendix 3F**.

3.3.2 AIM funds associated with lower total Medicare spending

Compared to similar non-AIM SSP ACOs, AIM Test 1 ACOs were more likely to have reduced total Medicare spending in each of the three AIM performance years (**Exhibit 3-9)**. Given the nature of the comparison between AIM Test 1 ACOs and a composite of similar non-AIM SSP ACOs, we did not report confidence intervals around the estimates. Instead, we reported the number of AIM Test 1 ACOs estimated to have greater reductions in spending than similar non-AIM SSP ACOs, with the number of ACOs that had substantially greater reductions (at least two standard deviations below the non-AIM mean) indicated in parentheses. As shown in **Exhibit 3-9,** the majority of Test 1 AIM ACOs were estimated to have greater reductions in Medicare spending than similar non-AIM SSP ACOs in each of the three performance years. On average, the net impact of AIM ACOs on total PBPM Medicare spending relative to their local markets was -$24.85 in PY1, -$35.55 in PY2, and -$27.56 in PY3, relative to similar non-AIM SSP ACOs.

Exhibit 3-9. AIM ACOs Reduced per Beneficiary per Month Total Medicare Spending Relative to Similar Non-AIM SSP ACOs

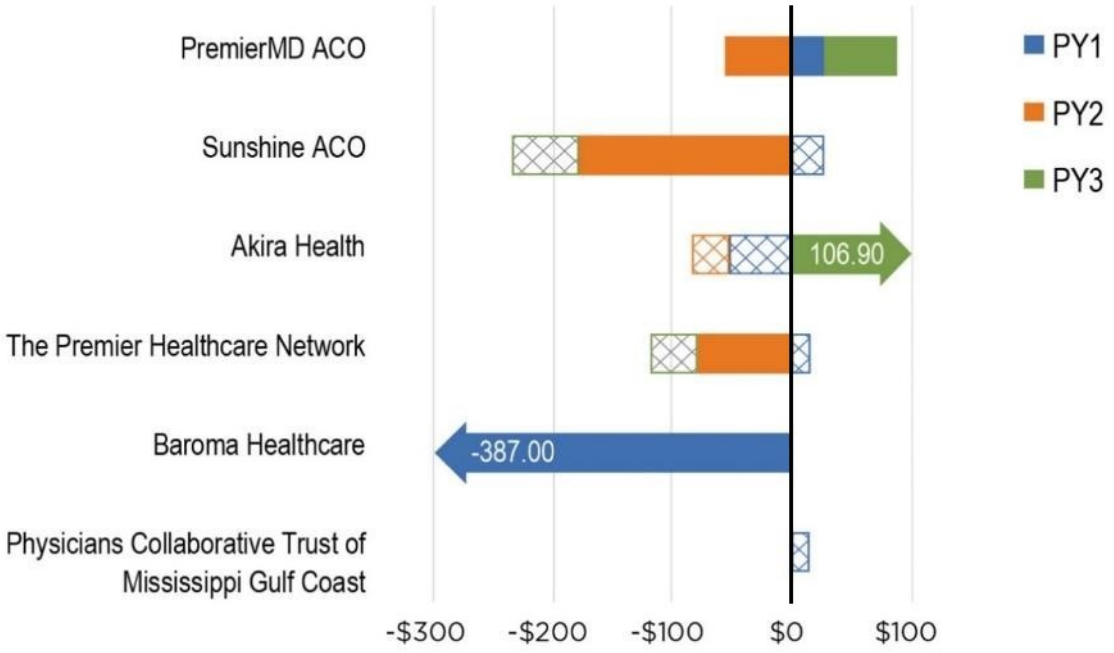
	PY1	PY2	PY3
AIM Test 1 ACOs 41 ACOs [a]	-$24.85 27 (13)	-$35.55 34 (10)	-$27.56 31 (6)
AIM Test 2 ACOs [b] 6 ACOs in PY1 4 ACOs in PY2 and PY3	-$62.31 2 (1)	-$77.69 4 (2)	$28.27 2 (0) [c]

[a] For AIM Test 1 ACOs, DID impacts of AIM ACOs were compared to DID impacts of similar non-AIM SSP ACOs (see Appendix 3F). The number of AIM ACO with negative estimates (i.e., reduced spending relative to non-AIM SSP ACOs) are shown beneath the estimate; in parentheses are the number of AIM ACOs with estimates that were at least two standard deviations lower than non-AIM SSP ACO impact estimates. PY1-PY3 represented 2016-2018.
[b] For AIM Test 2 ACOs, we compared beneficiaries assigned to AIM ACOs directly to those assigned to similar non-AIM SSP ACOs in the performance and baseline years using a DID approach (see Appendix 3F). The number of AIM ACO with negative estimates (i.e., reduced spending relative to non-AIM SSP ACOs) are shown beneath the estimate; in parentheses are the number of AIM ACOs with estimates that indicated reduced spending and were statistically significant at the 5 percent confidence level. For AIM Test 2 ACOs that began AIM in 2015, PY1-PY3 represented 2015-2017; for AIM Test 2 ACOs that began AIM in 2016, PY1-PY3 represented 2016-2018.
[c] One of the AIM Test 2 ACOs had statistically significantly higher spending than the average non-AIM SSP in PY3.

We compared AIM Test 2 ACOs to similar non-AIM SSP ACOs directly using a DID estimation strategy.[23] In PY3, we estimated that, on average, AIM Test 2 ACOs increased PBPM total Medicare spending by $28.27 compared to beneficiaries assigned to non-AIM SSP ACOs (**Exhibit 3-9**). This finding contrasted with estimates from the first two performance years, when AIM Test 2 ACOs reduced total Medicare spending relative to beneficiaries assigned to non-AIM SSP ACOs, on average. **Exhibit 3-10** reports estimates for each AIM Test 2 ACO for each performance year. Results were not consistent in direction or magnitude within ACOs across performance years or across ACOs within a given performance year. Our results thus do not suggest that AIM Test 2 yielded different changes in total PBPM Medicare spending than would have been obtained in the absence of AIM funds, though we note that the small number of AIM Test 2 ACOs makes these results inconclusive.

[23] Because AIM Test 2 ACOs could be directly compared with their peers as ACOs that existed prior to and during AIM, we were able to calculate whether any differences in spending and utilization between them were statistically significant.

Exhibit 3-10. AIM Test 2 ACOs Effects on Total Medicare Spending Were Not Consistent Across Years



Note: Solid bars denote statistically significant findings at the 5 percent level. Baroma Healthcare and Physicians Collaborative Trust of Mississippi Gulf Coast only participated in AIM during PY1, which was 2015 for these two ACOs. We compared beneficiaries assigned to AIM ACOs directly to those assigned to similar non-AIM SSP ACOs in the performance and baseline years using a DID approach (see Appendix 3F). For Akira Health and the Premier Healthcare Network, PY1-PY3 represented 2015-2017. For PremierMD and Sunshine, PY1-PY3 represented 2016-2018.
Source: ACO Provider Research Identifiable Files for 2015-2018 and 2013-2018 Medicare claims data.

3.3.3 AIM funds were associated with lower component Medicare spending and utilization

AIM Test 1 ACOs consistently demonstrated greater reductions in key Medicare spending categories and related utilization compared to similar non-AIM SSP ACOs (**Exhibit 3-11**). We observed greater reductions in all components of Medicare spending examined, including acute inpatient hospitalizations, outpatient visits, skilled nursing facility care, and home health use. AIM reductions in the probability of having one or more hospitalizations or ED visits also were greater than among similar non-AIM SSP ACOs. We found small or no differences for the number of hospitalizations and use of physician services. Findings were similar across performance years.

Exhibit 3-11. AIM Test 1 ACOs Had Greater Reductions in Medicare Spending than those Estimated for Similar Non-AIM SSP ACOs

	PY1 Difference in Impact Estimates	PY2 Difference in Impact Estimates	PY3 Difference in Impact Estimates
Medicare spending ($ PBPM)			
Total	-$24.85	-$35.55	-$27.56
Acute inpatient	-$8.04	-$6.91	-$9.94
Physician services	$2.22	-$1.44	-$5.69
Hospital outpatient and ambulatory surgery centers	-$7.31	-$5.60	-$2.46
Skilled nursing facility	-$5.99	-$6.04	-$3.52
Home health	-$2.56	-$2.04	-$3.35
Durable medical equipment	-$0.65	-$0.74	-$0.21
Inpatient utilization			

	PY1 Difference in Impact Estimates	PY2 Difference in Impact Estimates	PY3 Difference in Impact Estimates
Any acute hospitalization (% points)	-0.3	-0.2	-0.3
# Acute hospitalizations	0.0	0.0	0.0
All-cause 30-day readmission (% points)	-0.2	-0.2	-0.1
Any ambulatory care sensitive admission (% points)	-0.2	-0.3	-0.1
Emergency department and observation utilization			
Any ED visit not resulting in hospital admission (% points)	-0.1	-0.4	-0.2
Any ED visit resulting in hospital admission (% points)	-0.1	-0.2	-0.1
Any observation stays (inpatient or outpatient) (% points)	0.1	-0.4	-0.5
Post-acute care and hospice utilization			
# Skilled nursing facility days	-0.1	-0.1	0.0
Any hospice use (% points)	-0.2	0.0	-0.1
Physician services utilization			
# Office-based E&M visits	0.1	0.0	0.0
# Imaging events	0.0	0.0	0.0
# Procedures	0.0	-0.2	-0.5
# Tests	0.6	0.9	0.4
Mortality (% points)	-0.2	-0.2	-0.1

Note: Analysis of 41 AIM Test 1 ACOs and similar non-AIM SSP ACOs. Impact estimates were computed by comparing ACO assigned beneficiaries to non-ACO FFS beneficiaries located in the ACOs' markets. No tests of statistical significance were undertaken in this analysis. PBPM is per beneficiary per month; ED is emergency department; SNF is skilled nursing facility; E&M is evaluation and management. PY1-PY3 represented 2016-2018.
Source: ACO Provider Research Identifiable Files for 2016-2018 and 2013-2018 Medicare claims data.

While these results lacked rigorous testing of statistical significance, we counted the number of AIM ACOs for which estimated impacts were within two standard deviations of estimated impacts for the similar non-AIM SSP ACOs to approximate whether AIM ACOs had a meaningful difference in performance relative to these comparators. As shown in **Appendix 3G**, the majority of AIM ACOs had greater reductions in spending and utilization than similar non-AIM SSP ACOs, with the exception of physician service utilization. In general, only a few AIM ACOs had impacts that differed by more than two standard deviations from the mean non-AIM SSP impact, but among those that did, results typically indicated substantially greater reductions rather than increases, which is consistent with our aggregate results.

For the AIM Test 2 ACOs, the analysis was performed relative to their performance as an ACO prior to receiving AIM funds and a group of similar non-AIM SSP ACOs over the same time period. As shown in **Appendix 3G**, the direction and magnitude of results among AIM Test 2 ACOs relative to non-AIM SSPs were inconsistent across measures and performance years. The lack of any pattern in estimates for these outcomes is similar to our findings for total Medicare spending among AIM Test 2 ACOs relative to similar non-AIM SSP ACOs.

3.3.4 Limitations

We strove to analyze the performance of AIM ACOs relative to their non-AIM SSP ACO peers. Since no two ACOs are exactly alike, we tried to select SSP ACOs most similar to AIM Test 1 and AIM Test 2 ACOs in terms of Shared Savings Program start year, size, and financial risk track. However, they still differed from AIM ACOs in a variety of dimensions. Although we used econometric methods to account for differences in observable characteristics, ACOs likely differed in many other unobservable aspects that affected their ability to reduce Medicare spending and utilization. Analyses showing that AIM ACOs

performed better than their peers on several performance measures were suggestive but could not be interpreted as causal.

3.4. AIM ACOs' Impact on Experience and Quality of Care

To examine the effect of AIM on patient or caregiver experience, we obtained beneficiary-level CAHPS survey responses for surveyed, ACO-assigned beneficiaries and non-ACO FFS comparison beneficiaries residing in the ACOs' markets.[24] For AIM Test 1 ACOs, we compared responses to CAHPS using ordinary least squares regression analyses, controlling for the same beneficiary and geographic characteristics used in the spending and utilization analyses reported in **Chapter 3.2** (see **Appendix 3A** for detail). We also applied the same specification for similar non-AIM SSP ACOs and their non-ACO FFS comparisons, allowing us to determine whether quality performance varied between AIM Test 1 ACOs and similar-non AIM SSP ACOs. Finally, for AIM Test 2 ACOs, we used the same specification but compared AIM-assigned beneficiaries to those assigned to similar non-AIM SSP ACOs since AIM Test 2 ACOs were already participating in the Shared Savings Program when they began AIM.

We also tested the differential effect of AIM for beneficiaries in poor health (measured by low self-reported functional status) and, separately, for AIM beneficiaries assigned to ACOs that were estimated to reduce selected Medicare spending and utilization.

For preventive health and at-risk population measures, we relied upon publicly available, ACO-level quality data. Preventive health and at-risk population measures were selected because of their importance to health care provision in rural areas.[25] We compared these measures for AIM ACOs and similar non-AIM SSP ACOs at the ACO level and applied the same weighting techniques previously discussed to improve the balance between AIM and non-AIM SSP ACOs. Since these were ACO-level measures, comparisons with non-AIM SSP ACOs were necessarily descriptive, and none of the findings included statistical significance testing.

3.4.1 AIM ACOs maintained performance on patient or caregiver experience of care measures

The number of CAHPS survey responses for each of the analytic populations is shown in **Exhibit 3-12**. Across the 41 AIM Test 1 ACOs, 13,194 (PY1) 12,404 (PY2), and 12,885 (PY3) beneficiaries responded to CAHPS. For all groups, the number of survey responses decreased after PY1, sometimes dramatically. This decrease occurred because CAHPS reporting became optional after 2016, when PQRS was replaced by MIPS.

[24] A sample of beneficiaries assigned to each SSP ACO was surveyed with ACO CAHPS, as required by Shared Savings Program participation. Data for those in the non-ACO FFS comparison were drawn from responses to the MIPS CAHPS (formerly PQRS) sample.

[25] https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Downloads/2018-reporting-year-narrative-specifications.pdf

Exhibit 3-12. Number of CAHPS Survey Responses for each Analytic Population

	PY1	PY2	PY3
AIM Test 1 ACOs	13,194	12,404	12,885
Non-ACO FFS beneficiaries in AIM Test 1 ACO markets	17,283	8,240	4,467
Similar non-AIM SSP ACOs to AIM Test 1 ACOs	26,139	24,741	20,981
AIM Test 2 ACOs	1,432	1,062	1,086
Similar non-AIM SSP ACOs to AIM Test 2 ACOs	19,783	14,862	14,142

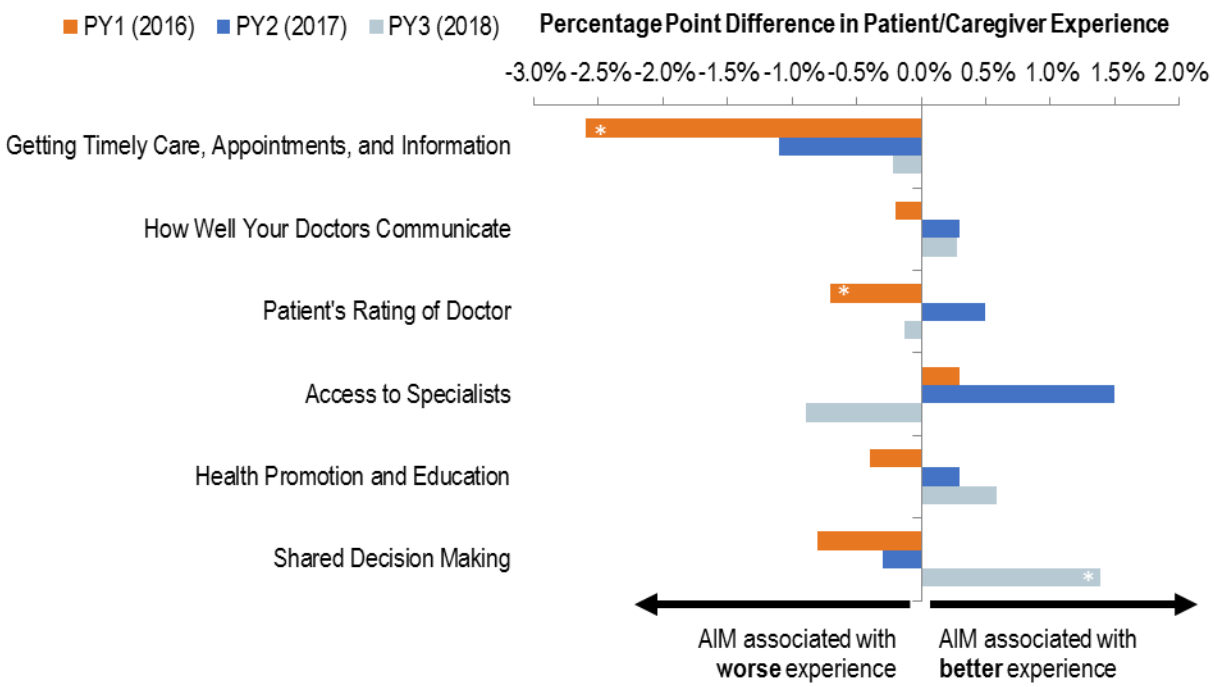
Note: Sample sizes include beneficiaries responding to at least one question used to generate the CAHPS measures. Thus, actual sample sizes for each measure could differ. For AIM Test 1 ACOs (and their similar non-AIM SSP ACOs), PY1-PY3 represented 2016-2018. For AIM Test 2 ACOs that began AIM in 2015, PY1-PY3 represented 2015-2017; for AIM Test 2 ACOs that began AIM in 2016, PY1-PY3 represented 2016-2018.
Source: CAHPS beneficiary-level responses for 2015 to 2018.

We found that survey respondents were broadly representative of beneficiaries in our analytic sample in terms of demographic and health characteristics, as shown in **Appendix 3H**. However, the CAHPS sample had a slightly lower proportion of disabled or Medicaid-dual-eligible beneficiaries, and those beneficiaries had slightly more chronic conditions and higher HCC scores.

We found greater differences between beneficiaries assigned to AIM Test 2 ACOs and the subset of respondent beneficiaries (**Appendix 3I**). Some of this difference may be attributable to the fact that the composition of beneficiaries' characteristics can vary more with fewer ACOs. Though controlling for these characteristics in the analyses below helps to mitigate these differences, we note that unobserved differences may persist.

We report the results of applying the beneficiary-level regression analysis in **Exhibit 3-13**. Differences in performance on patient or caregiver experience measures for AIM Test 1 ACO-assigned beneficiaries and non-ACO FFS beneficiaries residing in the ACOs' markets were small, and there was no consistent pattern of positive or negative results within any given performance year.

Exhibit 3-13. Few Differences in Performance on Patient or Caregiver Experience between AIM Test 1 ACOs and non-ACO FFS Beneficiaries

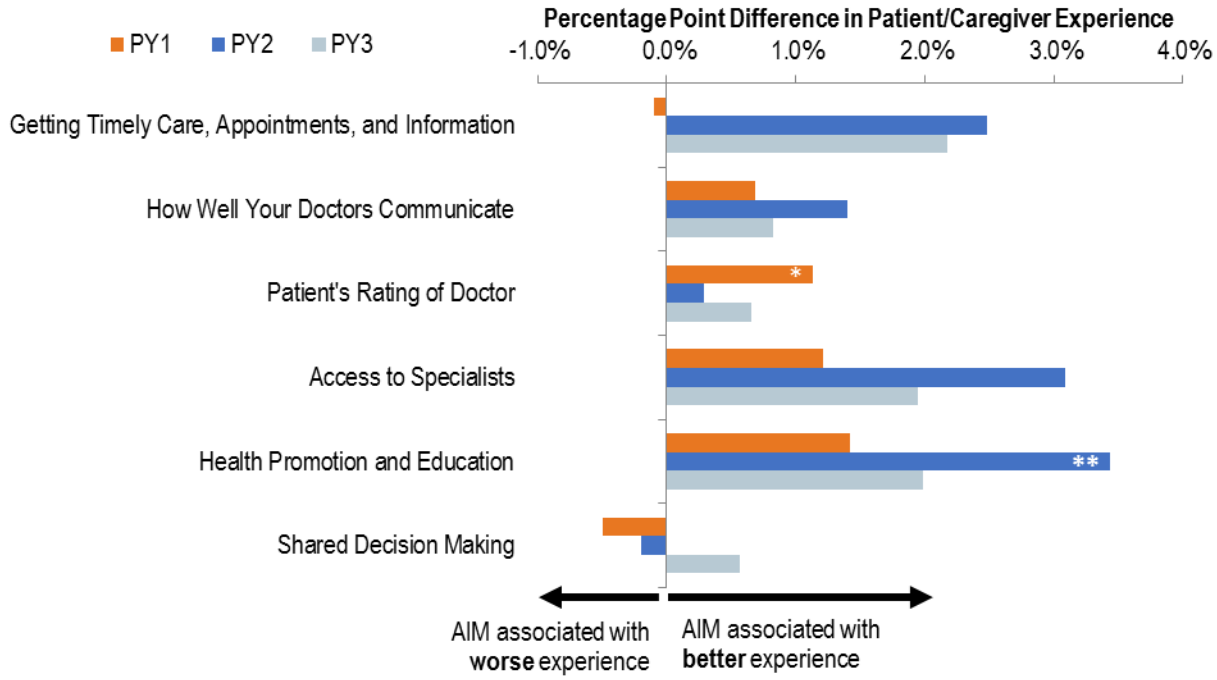


Note: Sample includes assigned beneficiaries and non-ACO FFS beneficiaries in the ACOs' markets with available CAHPS data. * Indicates statistical significance at the 5 percent level.
Source: ACO, PQRS, and MIPS CAHPS beneficiary-level responses for 2016-2018.

We also compared the performance of the similar non-AIM SSP ACOs to their non-ACO FFS market comparison beneficiaries on the patient or caregiver experience measures. If the similar non-AIM SSP ACOs showed improved performance relative to their comparison groups, we might be concerned about the performance of AIM ACOs. However, non-AIM SSP ACOs performed similarly, as reported in **Appendix 3I**.

We also did not find consistent differences in patient or caregiver experiences between AIM Test 2 ACOs compared to similar non-AIM SSP ACOs, as shown in **Exhibit 3-14**.

Exhibit 3-14. Few Differences in Performance on Patient or Caregiver Experience between AIM Test 2 ACOs and Similar non-AIM SSP ACOs



Note: Includes beneficiaries assigned to AIM Test 2 ACO and similar non-AIM SSP ACOs with available CAHPS data. For AIM Test 2 ACOs that began AIM in 2015, PY1-PY3 represented 2015 to 2017; for AIM Test 2 ACOs that began AIM in 2016, PY1-PY3 represented 2016 to 2018. . * Indicates statistical significance at the 5 percent level.
Source: CAHPS beneficiary-level responses for 2015-2018.

Next, we explored whether there were differences in performance on these measures for beneficiaries in poor health, as indicated by the lowest 25th percentile in self-reported functional status (**Appendix 3I**).[26] We found that beneficiaries in poor health had lower performance on most of the patient or caregiver experience measures. However, we did not find systematic evidence of differential impacts of AIM on quality among beneficiaries with poor health relative to AIM impacts among beneficiaries without poor health.

While we did not find any decreases in patient or caregiver experience among AIM ACOs on average, it is important to determine whether those AIM ACOs that reduced spending or certain types of utilization were also associated with similar or higher quality than remaining AIM ACOs. We stratified our regression-adjusted results for patient or caregiver experience outcomes between beneficiaries assigned to AIM Test 1 ACOs with reductions in spending or hospitalizations, emergency department use, or ambulatory care sensitive hospitalizations and beneficiaries assigned to AIM Test 1 ACOs that did not achieve such reductions. These claims-based performance measures were selected based on their overall importance and relevance to quality. For this analysis, we only use information from the DID impacts point estimates without accounting for statistical significance.

[26] Functional status was determined from CAHPS items related to self-rated general and mental health; cognitive functioning; chronic conditions; and limitations in social activities, walking or climbing stairs, dressing or bathing, or running errands.

Findings for quality subgroups based on estimated reductions in Medicare spending and the other utilization measures are summarized below (**Exhibit 3-15**). Positive values indicate that ACOs that reduced the total spending or utilization metric were associated with greater performance on patient or caregiver experience measures. Negative values indicate the opposite, in that beneficiaries assigned to AIM Test 1 ACOs that reduced the specific utilization metric were associated with lower quality compared to the FFS comparison group. We found a negative association between reductions in ambulatory care sensitive (ACS) condition hospitalizations and multiple patient or caregiver experience measures in PY2 and PY3. This negative association resulted because comparison beneficiaries residing in the same market as ACOs that reduced ASC hospitalizations reported better patient or caregiver experience than comparison beneficiaries residing in the same market as ACOs that did not reduce ASC hospitalizations. Beneficiaries assigned to AIM ACOs that reduced ASC hospitalizations had patient or caregiver experiences similar to those assigned to AIM ACOs that did not reduce ASC hospitalizations. ACO-level quality analyses for these subgroups are reported below.

Exhibit 3-15. Patient or Caregiver Experience Generally Remained the Same for AIM Test 1 ACOs Estimated to Reduce Total Medicare Spending, but Results for ACOs with Other Changes in Utilization Were Mixed

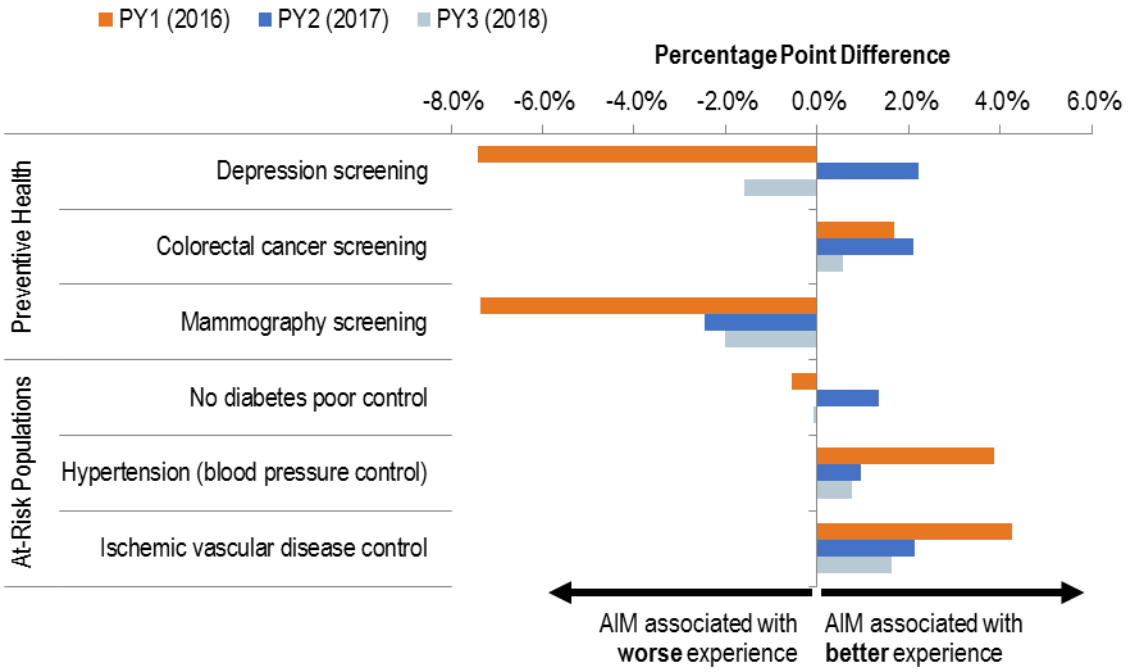
Measures	Reduce Medicare Spending			Reduce Any Hospitalization			Reduce Any ED without Admission			Reduce Any ASC Hospitalization		
	PY1	PY2	PY3	PY1	PY2	PY3	PY1	PY2	PY3	PY1	PY2	PY3
Getting Timely Care, Appointments, and Information						+	+					-
How Well Your Doctors Communicate											-	
Patient's Rating of Doctor		+					+				-	
Access to Specialists			+									-
Health Promotion and Education												
Shared Decision Making									+		-	

Note: Statistical significance at the 5% level is indicated by shaded cells. Positive signs indicate that AIM ACOs estimated to reduce the Medicare spending or utilization were associated with greater performance on the CAHPS measure. Negative signs indicate that AIM ACOs estimated to reduce Medicare spending or utilization were associated with lower performance on the CAHPS measure. Sample includes AIM Test 1 ACO-assigned beneficiaries and non-ACO FFS beneficiaries in the ACOs' markets with available CAHPS data. ED is emergency department; ASC is ambulatory care sensitive conditions.
Source: CAHPS beneficiary-level responses for 2016-2018, ACO Provider Research Identifiable Files for 2016-2018, and 2013-2018 Medicare claims data.

3.4.2 AIM ACOs maintained performance on ACO-level preventive health and at-risk population quality of care measures

We explored the relationship between AIM participation and quality measures related to preventive health and at-risk populations, which ACOs are required to report under the Shared Savings Program. Data for these measures were not at the beneficiary level; instead, we compared ACO-level performance on these measures for AIM Test 1 versus similar non-AIM SSP ACOs. We found few differences between AIM and similar non-AIM SSP ACOs' averages in PY2 or PY3 (**Exhibit 3-16)**. We found larger differences in PY1, but we attribute some of these differences to the PY1 reporting-only requirements. In the second and later years of participation, ACOs needed to achieve a particular quality score to be eligible to share in savings.

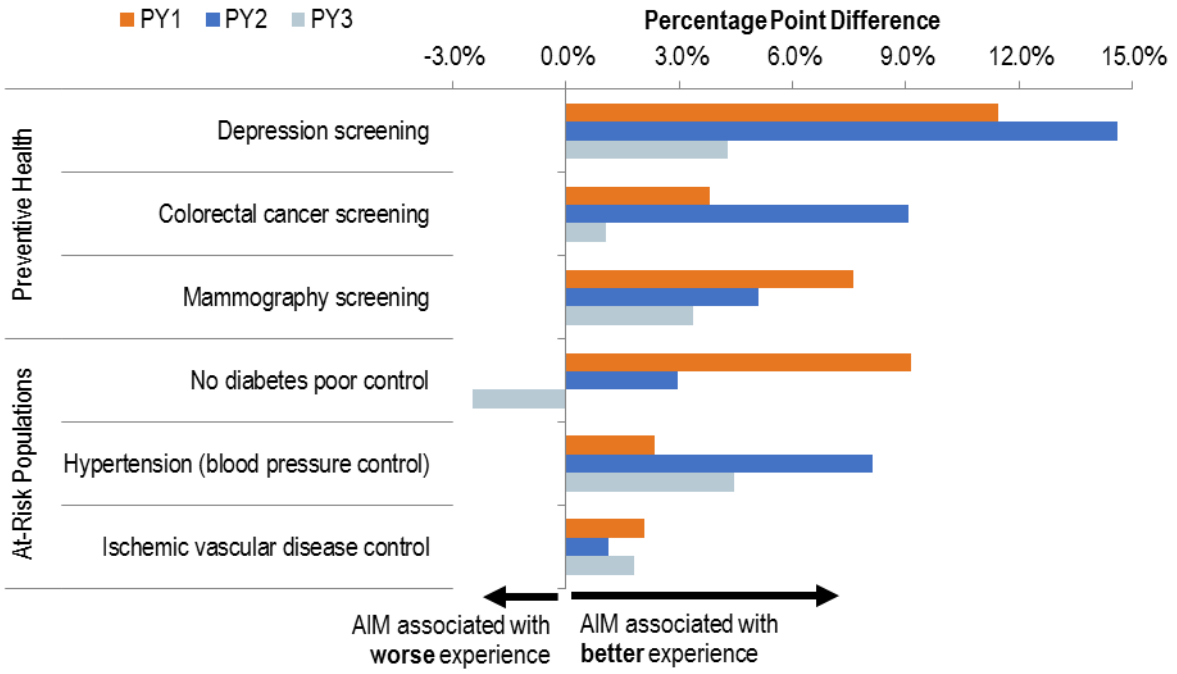
Exhibit 3-16. Small Differences in ACO Quality Measures between AIM Test 1 and Similar Non-AIM SSP ACOs in PY2 and PY3; Larger Differences in PY1 Likely from Measure Reporting-Only Requirements



Note: Comparison of performance on ACO quality measures for AIM Test 1 ACOs and similar non-AIM SSP ACOs. We report average differences between the two groups. We reversed the diabetes poor control measure so that higher performance is better. In PY1-PY3, there were 41 AIM ACOs. There were 89 similar non-AIM SSP ACOs in PY1, 77 non-AIM SSP ACOs in PY2, and 70 in PY3. Negative differences represent AIM ACOs performing worse on a particular measure compared to non-AIM SSP ACOs, and positive differences represent AIM ACOs performing better on a particular measure compared to non-AIM SSP ACOs.
Source: Shared Savings Program Public Use Files, 2016-2018.

AIM Test 2 ACOs appeared to outperform similar non-AIM SSP ACOs on measures of preventive health in all performance years (**Exhibit 3-17**). AIM Test 2 ACOs also typically received higher scores on all three at-risk population measures, though differences were smaller in magnitude.

Exhibit 3-17. AIM Test 2 ACOs Perform Better on Several Preventive Health and At-Risk Populations Measures Relative to Similar Non-AIM SSP ACOs



Note: Comparison of performance on ACO quality measures for AIM Test 2 ACOs and similar non-AIM SSP ACOs. For AIM Test 2 ACOs that began AIM in 2015, PY1-PY3 represented 2015-2017; for ACOs that began AIM in 2016, PY1-PY3 represented 2016-2018. We reported average differences between the two groups. We reversed the diabetes poor control measure so that higher performance is better. In PY1, there were 6 AIM ACOs and 71 similar non-AIM SSP ACOs. In PY2, there were 4 AIM ACOs and 56 non-AIM SSP ACOs. In PY3, there were 4 AIM ACOs and 49 non-AIM SSP ACOs. Negative differences represent AIM ACOs performing worse on a particular measure compared to non-AIM SSP ACOs, and positive differences represent AIM ACOs performing better on a particular measure compared to non-AIM SSP ACOs.
Source: Shared Savings Program Public Use Files, 2016-2018.

Next, we focused on the 30 AIM Test 1 ACOs that were estimated to decrease total Medicare spending in PY3. We compared performance on the preventive and at-risk population ACO measures for these AIM ACOs and their similar non-AIM SSP ACOs. These subgroup findings are summarized for total Medicare spending reductions and for impacts on several types of utilization that are most related to quality in **Exhibit 3-18**. This table reports the average percent difference for AIM Test 1 ACOs that reduced spending or selected utilization metrics compared to non-AIM SSP ACOs on each quality measure in PY3. We subtracted the non-AIM SSP ACO measure value from the AIM ACO measure value and converted it to a percent for comparability. Positive values indicate AIM performance exceeding similar non-AIM SSP ACO performance for the ACOs that reduced spending or utilization listed in each column. Negative values indicate that AIM performance was lagging behind similar non-AIM SSP ACO performance for ACOs that reduced spending or utilization. Estimated differences were small in all subgroups and did not follow any consistent pattern of positive or negative results within any measure.

Exhibit 3-18. AIM ACOs Reducing Medicare Spending and Certain Utilization Measures Perform Very Similarly to Non-AIM SSP ACOs on Preventive Health and At-Risk Population Measures in PY3 (2018)

	Percent Difference between AIM and Similar Non-AIM SSP ACO Performance for AIM ACOs Found to Reduce:			
	Total Medicare Spending (N=30)	Any Hospitalization (N=26)	Any ED Not Resulting in Admission (N=31)	Any ASC (N=25)
Depression screening	1.2%	0.3%	-2.9%	0.6%
Colorectal cancer screening	3.5%	1.4%	-0.3%	4.1%
Mammography screening	-1.5%	-1.4%	-4.0%	0.6%
Diabetes control	0.4%	-0.7%	-0.1%	0.3%
Hypertension (blood pressure control)	1.5%	0.1%	1.6%	2.2%
Ischemic vascular disease control	1.3%	1.1%	1.6%	1.1%

Note: Comparison of performance on ACO quality measures for AIM Test 1 ACOs and similar non-AIM SSP ACOs for those ACOs estimated to reduce total Medicare spending or utilization, as noted. We reversed the diabetes poor control measure so that higher performance is better. Negative differences represent AIM ACOs performing worse on a particular measure compared to non-AIM SSP ACOs, and positive differences represent AIM ACOs performing better on a particular measure compared to non-AIM SSP ACOs. ED is emergency department; ASC is ambulatory sensitive condition.
Source: Shared Savings Program Public Use Files, 2018; ACO Provider Research Identifiable Files for 2018; and Medicare claims data from 2013-2015 and 2018.

3.4.3 Limitations

It important to note that in the first year of Shared Savings Program participation, ACOs were only required to report quality measure information and were not accountable for measure performance; it was not until the second and subsequent years when eligibility to earn shared savings depended on quality measure performance. As a result, volatility in the measures during the first participation year could have been the result of ACOs gaining a better understanding of the program. Likewise, outcomes in certain quality domains changed in the third performance year for most ACOs, as CAHPS dropped several questions beginning in 2018.

Additionally, since ACO CAHPS data could not be collected for ACOs prior to their formation, our results are cross-sectional (i.e., cannot account for possible baseline differences between the AIM and comparison groups). Therefore, we cannot rule out changes in quality (positive or negative) attributable to AIM. Lastly, CAHPS response is voluntary. Our results may not generalize to non-responding beneficiaries.

4. Which Factors Drove AIM's Reductions in Total Medicare Spending?

AIM Test 1 ACOs reduced total Medicare spending across the three AIM performance years. In this section, we explored the drivers of the reduction in several ways. First, we investigated whether there were differential impacts on Medicare spending by the presence of key ACO attributes. Next, we examined spending patterns by AIM ACO assigned beneficiaries, with particular focus on post-acute care spending changes. We then explored the relationship between ACO assignment and Medicare spending and examined how ACO care management activities might have affected assignment. Lastly, we determined whether reductions in total Medicare expenditures were associated with any changes in Medicare Part D drug spending by AIM beneficiaries enrolled in a Part D plan.

Key findings on the drivers of AIM Test 1 ACOs impacts were:

- AIM Test 1 ACOs were successful in reducing total Medicare spending across several key ACO attributes and no one factor appeared to be a consistent driver. There was some suggestive evidence that AIM ACOs with management company affiliations were able to achieve greater reductions sooner; that is, managed AIM ACOs may have reduced Medicare spending more than independent ACOs in 2016 and 2017, but in 2018, independent ACOs reduced Medicare spending by approximately the same amount as managed ACOs.
- AIM Test 1 ACOs reduced spending on home health and skilled nursing facility use, which appeared to be driven by decreased utilization of these services compared to non-ACO FFS comparison beneficiaries. These patterns were particularly apparent among AIM ACOs estimated to have the greatest reductions in total Medicare spending. These findings were supported by AIM ACOs' reported efforts to engage and coordinate with post-acute care providers.
- Most beneficiaries were assigned to the same AIM ACO over multiple years. We found these beneficiaries to be healthier and less costly. They were associated with the greater reductions in total Medicare spending compared to beneficiaries assigned non-continuously, though we could not disentangle whether AIM ACOs were able reduce Medicare spending to a greater extent for continuously assigned beneficiaries, or whether lower cost beneficiaries were more likely to be attributed to the ACO over multiple years.
- The use of Annual Wellness Visits, Chronic Care Management, and Transitional Care Management increased for both AIM ACO-assigned and comparison beneficiaries during the AIM performance period. Spending on these services, particularly Annual Wellness Visits, represented a meaningful proportion of primary care charges used to assign beneficiaries to ACOs and, for some beneficiaries, use of these services could have determined their assignment to the ACO. However, we did not find evidence that AIM ACOs used these services to influence beneficiary selection in terms of encouraging greater use of them later in the year (as suggested by other studies).
- We found that AIM was associated with decreases in spending on Medicare Part D covered prescription drugs, which did not include any manufacturer rebates outside of the drug costs the Medicare program incurred. AIM ACOs were associated with a reduction in total Medicare (including Part D) spending among assigned beneficiaries enrolled in Medicare Part D compared to non-ACO FFS comparison beneficiaries enrolled in Part D.

4.1. Data and Methods

In most sections of the chapter, we focus on the 41 AIM Test 1 ACOs for which we constructed a comparison group of non-ACO FFS Medicare beneficiaries; however, where possible, we included the 4

AIM Test 2 ACOs in the descriptive analyses. We note the population studied in each exhibit. The analyses reported in this chapter are as follows:

Differential impacts of AIM by selected characteristics (Section 4.2): We tested for differential impacts of AIM Test 1 by key ACO characteristics listed in **Exhibit 4-1**. We selected the ACO factors based on their importance to the model, as determined through interviews or investigations of the data. For each of the domains listed, we ran additional regressions on total Medicare spending for each performance year. Within a domain, the estimates for each factor held constant the other factors in the domain. For example, the differential impact of AIM for ACOs using a management company controlled for whether that ACO had a hospital partner or fewer than 6,500 assigned beneficiaries but did not control for the factors in the other domains (e.g., high rurality). See **Appendix 4A** for additional detail on methods.

Exhibit 4-1. Selected Potential Drivers of AIM Impacts on Medicare Spending for Test 1 AIM ACOs

Potential Driver of Impacts on Total Medicare Spending by Domain	Rationale for Selection
ACO formation	
ACO uses management company	Many AIM ACOs relied upon the services of a management company to operate the ACO. We explored whether a management company affiliation was related to AIM impact on total Medicare spending.
ACO includes hospital as a participant	Inclusion of a hospital partner was a common feature of AIM ACOs. We tested whether AIM ACOs with hospital partners were more or less successful in reducing total Medicare spending than those without a hospital partner.
ACO has fewer than 6,500 assigned beneficiaries	Some AIM ACOs struggled to meet the Shared Savings Program minimum criterion of 5,000 beneficiaries. We tested whether the smallest ACOs, defined as having fewer than 6,500 assigned beneficiaries in the performance year, were less likely to reduce total Medicare spending.
Market geography	
High rurality ACO	AIM ACOs are located in more rural areas, consistent with a goal of the model. We tested whether AIM ACOs in the most rural areas (defined as RUCA greater than 6) were less likely to reduce total Medicare spending.*
Non-contiguous ACO market	Some AIM ACO's participating clinicians were not centrally located—some ACOs had covered diverse geographic areas as far apart as across the country. We identified ACOs that comprised non-contiguous counties and examined how total Medicare spending impacts varied for these "non-contiguous" ACOs.
High baseline spending	
ACOs for which assigned beneficiaries have higher average baseline spending than the comparison group	We tested whether estimated reductions in Medicare spending from AIM were concentrated among ACOs that served beneficiaries who started out with relatively with higher spending.

*RUCA = Rural-Urban Commuting Area. RUCA code 6 indicates area that is "Micropolitan low commuting: primary flow 10% to 30% to a large urban cluster." Note that rural is measured as RUCA > 4 in reporting ACO rurality throughout this report; here we are interested in highly rural ACOs.

Medicare spending and utilization patterns (Section 4.3): We described the breakdown of Medicare spending by AIM Test 1 ACO beneficiaries compared to non-ACO FFS comparison beneficiaries in the ACOs' markets, with particular attention to the use of post-acute care. We also explored spending patterns among AIM ACOs with the greatest impacts (both decreases and increases) on total Medicare spending over the three performance years. For many exhibits in this section, we show patterns over time from 2013 to 2018. In these exhibits, the baseline period, 2013 to 2015, represents the average baseline values for each corresponding performance year weighted by the number of ACO beneficiaries. Each performance year (2016 to 2018) represents performance year values for each year's ACO beneficiaries

and comparison beneficiaries. See **Chapter 3** for additional detail on hypothetical ACO assignment during the baseline period.

Medicare spending and ACO assignment (Section 4.4): We compared the characteristics of beneficiaries assigned to AIM Test 1 ACOs over multiple years to those assigned for a single year. We re-ran the AIM Test 1 impact regression model on total Medicare spending (see **Chapter 3**) with a heterogeneous treatment flag to examine the differential changes in Medicare spending for ACOs' beneficiaries depending on whether they were attributed to the ACO for one year or continuously. We then looked at use of care management services (Annual Wellness Visits, Chronic Care Management, and Transitional Care Management) by ACO-assigned beneficiaries and non-ACO FFS comparison beneficiaries in the ACOs' markets and how use of these services affected ACO assignment. We drew from experiences reported by the AIM ACOs during two rounds of interviews regarding the integral role played by care management services as part the ACOs' care management activities. **Appendix 1A** provides more information on the timing of the AIM ACO interviews. For these analyses, we frequently refer to Medicare allowed charges for eligible evaluation and management (E&M) visits, which were used to determine ACO assignment under the Shared Savings Program. Throughout the report, we refer to these charges as allowed charges for primary care services.

Medicare Part D prescription drug spending and AIM (Section 4.5): Although ACOs are not accountable for Part D spending, we sought to answer whether the estimated reductions in Medicare Parts A and B spending were related to changes in Part D prescription drug spending. For example, if substitution occurred, and prescription drug spending increased as a result of decreases to Medicare Parts A and B spending (and utilization), our estimated reductions would not translate to a true reduction in Medicare's overall cost burden. We used Medicare data on total Part D prescription drug costs incurred by Medicare and Part D enrollment information to limit the analytic sample to ACO-assigned and non-ACO FFS comparison beneficiaries who were enrolled in Medicare Part D during the year.[27] We then re-ran the DID impact regression model on Medicare spending on Part D and total Medicare spending on Part A, B, and D. Refer to **Chapter 3** for more information on the DID impact regression model.

4.2. Differential Impacts of AIM on Medicare Spending by Key ACO Features

The percent of AIM Test 1 ACOs with each of the ACO attributes examined (as listed in **Exhibit 4-1**) is shown in **Exhibit 4-2**. We collected information on management company affiliations and hospital partnerships in 2016 and 2017, the first two performance years via interviews; we imputed the reported 2017 values for 2018. Reported hospital partnerships did not change between interviews. The remaining ACO factors were determined based on the information in each year and thus could change over time. Fewer AIM ACOs were defined as small over time (nine small AIM ACOs in 2016 versus six in 2018).

[27] The measure of Part D spending we used did not account for direct and indirect remuneration (DIR), which is largely, but not solely, manufacturer rebates. A recent CMS analysis showed that DIR has been increasing over time and may have resulted in higher out-of-pocket spending on prescription drugs (Medicare Part D – Direct and Indirect Remuneration (DIR). 19 Jan 2017. https://www.cms.gov/newsroom/fact-sheets/medicare-part-d-direct-and-indirect-remuneration-dir). While these data were not available for incorporation into our analysis, we believe that our Part D estimates are still valid, as our difference-in-differences design should mitigate the effects of DIR, assuming that AIM and comparison beneficiaries were not differentially affected.

Exhibit 4-2: Counts of AIM Test 1 ACOs by Attribute

	Performance Year 1 (2016)	Performance Year 2 (2017)	Performance Year 3 (2018)
ACO formation			
ACO uses a management company	35 (85%)	29 (71%)	29 (71%)
Small ACO (fewer than 6,500 assigned beneficiaries)	9 (22%)	8 (20%)	6 (15%)
ACO has hospital partner	26 (63%)	26 (63%)	26 (63%)
Market geography			
High rurality (mean RUCA > 6)	11 (27%)	9 (22%)	9 (22%)
Non-contiguous ACO market	28 (68%)	29 (71%)	28 (68%)
High baseline spending			
High cost ACO (ACO spending > comparison spending during the baseline)	16 (39%)	19 (46%)	18 (44%)

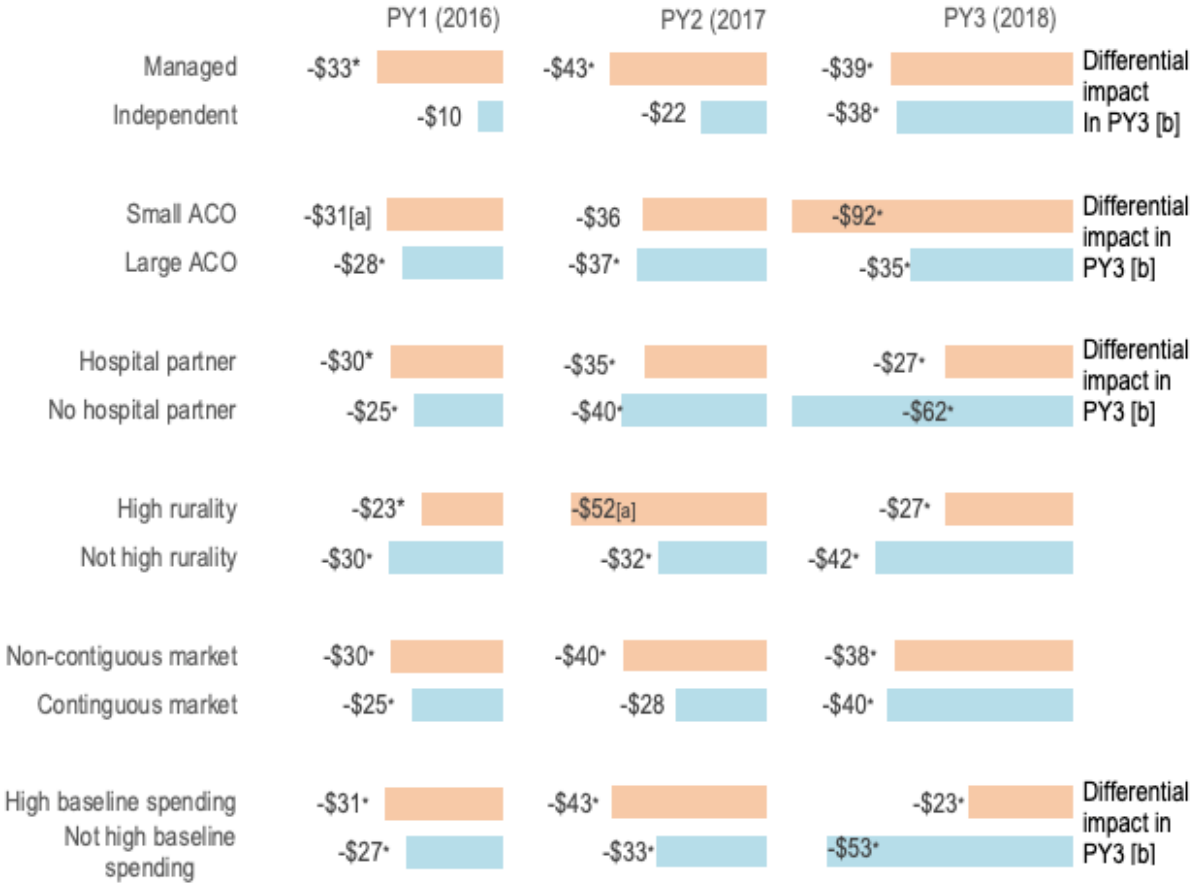
Source: ACO Provider Research Identifiable Files for 2016-2018, 2013-2018 Medicare claims data, and interviews with ACO leadership for categorizing ACOs into managed versus independent and having a hospital partner or not.

We estimated differential impacts separately for each domain. For example, the differential impact of AIM for ACOs with and without management companies was estimated simultaneously with the differential impact of being small and the differential impact of having a hospital partner. The differential impact then equals the differential impact of AIM when using a management company, holding constant whether or not the ACO was small or had a hospital partner.

We found that AIM Test 1 ACOs in every subgroup and every year reduced total Medicare spending on average, as shown in **Exhibit 4-3**, though the estimates were not always statistically significant. Overall, we did not find strong evidence of differential impacts among AIM ACOs for any particular characteristic consistently across the three performance years. While we found that ACOs with management companies had achieved greater reductions in total Medicare spending across the first two performance years, the differences between ACOs with and without management companies were not significant in PY1 or PY2. In PY3, independent and managed ACOs reduced Medicare spending by almost the same amount. The differential impacts on total Medicare spending were large and statistically significant at the 5 percent level for some subgroups in PY3. These included: small ACOs (-$92 PBPM) versus larger ACOs (-$35 PBPM); not having a hospital (-$62 PBPM) versus those with a hospital partner (-$27 PBPM); and not being a high cost ACO (-$53 PBPM) versus high cost ACOs (-$23 PBPM).

We caution against drawing program-wide conclusions from these differences for several reasons. First, they were only demonstrated in PY3. Second, for these subgroups with substantially differential impacts on Medicare spending, we also estimated large baseline trend differences. These differences in baseline trends were not statistically significant and thus passed the parallel trends assumption. However, the trends were large enough to call into question whether the estimated PY3 differences were truly reflective of differential drivers of spending reductions, as further discussed in **Appendix 4A**. Finally, we note that while nine AIM ACOs were small in PY1, only six were still small in PY3. If we had held the nine ACOs steady in the PY3 analysis, the differential reduction in Medicare spending would have fallen to -$61 PBPM for small ACOs instead of the -$92 PBPM estimate shown in **Exhibit 4-3**.

Exhibit 4-3. AIM Reduced Medicare Spending Across All Key ACO Features



Note: DID impact findings from comparing AIM Test 1 ACO assigned beneficiaries to non-ACO FFS beneficiaries residing in the AIM ACOs' markets. We ran separate impact regressions for each domain and included indicators for each feature to obtain differential impacts on total Medicare spending. * Indicates statistical significance at the 5 percent level.
[a] Estimate was statistically significant at the 5 percent level, but parallel trends assumption did not pass for subgroup ($p < 0.05$).
[b] The difference in total spending reduction with the subgroup (e.g., managed versus independent ACOs) was statistically significant for the subgroup indicated.
Source: ACO Provider Research Identifiable Files for 2016-2018, 2013-2018 Medicare claims data, and interviews with ACO leadership for categorizing ACOs into managed versus independent and having a hospital partner or not.

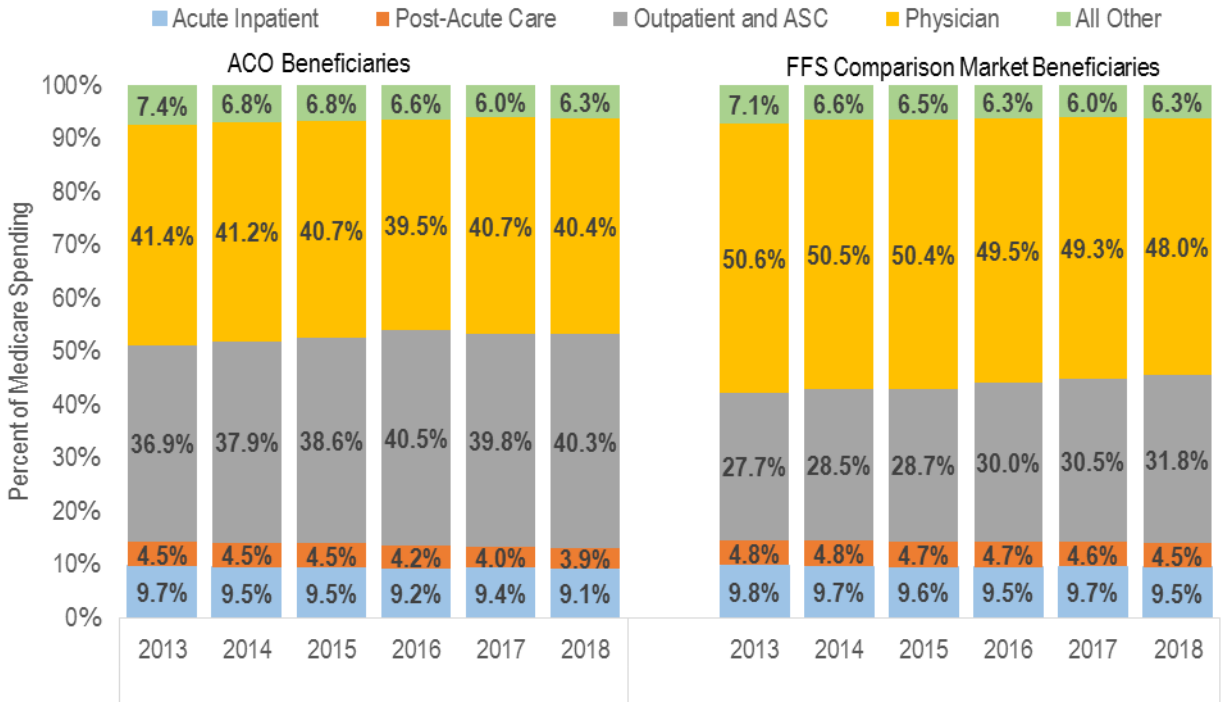
4.3. Medicare Spending and Utilization Patterns Among ACO Beneficiaries

In this section, we broke down Medicare spending by categories. We compared the breakdown of total Medicare spending for AIM Test 1 ACOs and their non-ACO FFS comparison beneficiaries residing in the ACOs' markets for each year in **Exhibit 4-4**. For both ACO and comparison beneficiaries, we found that the largest categories of spending were for physician services and use of hospital outpatient and ambulatory surgical centers (ASCs). This finding was not surprising given that beneficiaries were assigned to ACOs based on primary care services received in the physician or outpatient setting (and comparison beneficiaries were selected based on having at least one qualifying primary care visit).[28] In

[28] Assignment to ACOs was based on care received though office-based visits with physician practices and outpatient visits with certain facility-based providers, such as FQHCs, RHCs, and CAHs. The greater Medicare spending share for physician care amongst comparison beneficiaries compared to ACO-assigned beneficiaries was likely an artifact of assignment – beneficiaries who sought primary care from the facility-based providers in the community were more likely to get assigned to the ACO (and therefore not be part of the comparison group).

general, the spending distributions followed similar patterns over time for both ACO and non-ACO comparison beneficiaries.

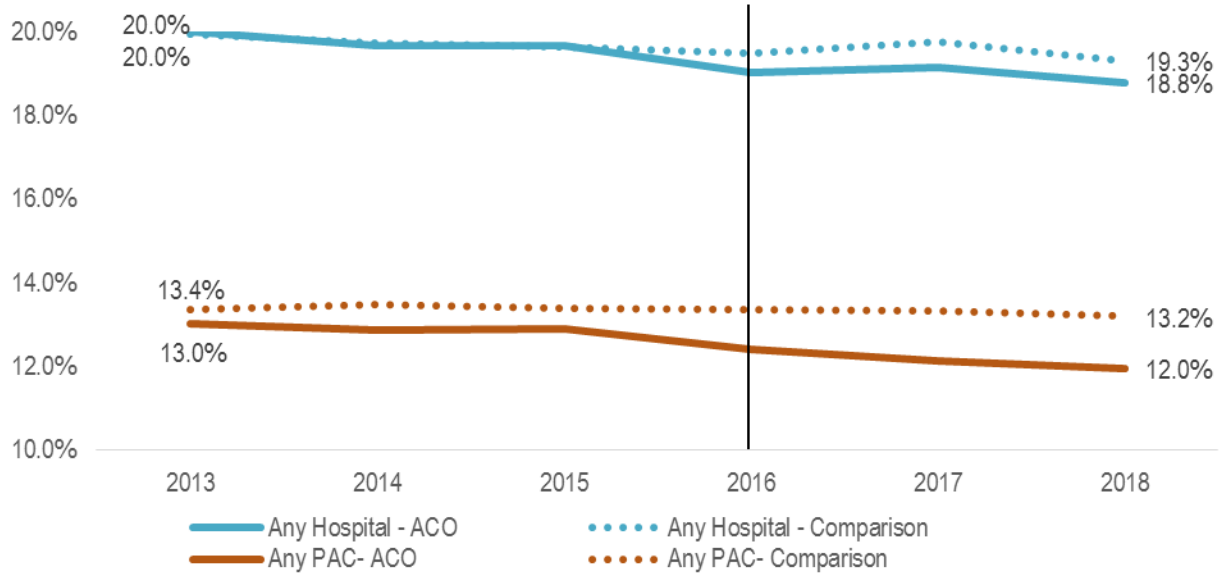
Exhibit 4-4. ACO and Comparison Beneficiaries Spent Primarily on Physician and Outpatient Services



Note: Figures represent unadjusted Medicare spending by ACO and non-ACO FFS comparison beneficiaries averaged across the 41 AIM Test 1 ACOs by category: acute inpatient; post-acute care (skilled nursing facility, home health agency, long-term care hospital, and inpatient rehabilitation facility); outpatient and ambulatory surgical centers (ASCs); physician services (office-based visits, other evaluation and management visits, anesthesia, imagining, testing, and procedures); all other (hospice, DME, dialysis, inpatient psychiatric treatment facilities, cancer centers, children's hospitals, ambulance, chiropractor, chemotherapy, vision, hearing and speech services). Figures for 2013 to 2015 represent the average baseline values for each corresponding performance year. The performance years (2016 to 2018) represent performance-year values for each year's ACO providers. See Chapter 3 for additional detail on hypothetical ACO assignment during the baseline period.
Source: ACO Provider Research Identifiable Files for 2016-2018 and 2013-2018 Medicare claims data.

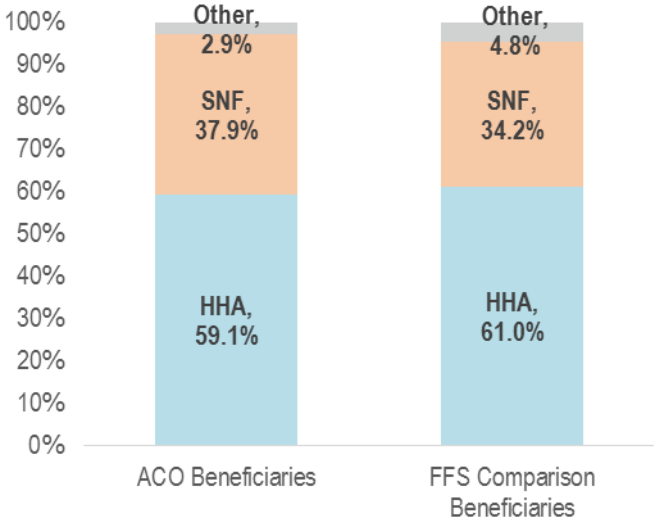
We next compared the percentage of beneficiaries using any services among AIM Test 1 ACO assigned and non-ACO FFS comparison beneficiaries by category. Unadjusted differences were most apparent for use of acute and post-acute care services, as depicted in **Exhibit 4-5**. Percentages of AIM ACOs' comparison beneficiaries using acute and post-acute care services remained mostly steady over time, while percentages decreased over time among AIM Test 1 ACO assigned beneficiaries. The downward trend was particularly apparent for post-acute care use from 2016 through 2018 for ACO beneficiaries. These findings were consistent with the estimated reductions in acute and post-acute services by AIM Test 1 ACOs (see **Chapter 3**). Furthermore, despite the estimated reductions in acute and post-acute services, we did not find evidence of higher hospital readmissions or mortality rates, nor decreases in quality of care, as shown in **Chapter 3**.

Exhibit 4-5. Utilization of Acute and Post-Acute Services Decreased Among the AIM ACO Beneficiaries



Note: Percent of ACO and non-ACO FFS comparison beneficiaries (separately) with any acute or post-acute care (PAC) Medicare spending averaged across the 41 AIM Test 1 ACOs. Figures for 2013 to 2015 represent the average baseline values for each corresponding performance year. Each performance year (2016 to 2018) represents performance year values for each year's ACO beneficiaries and comparison beneficiaries. See Chapter 3 for additional detail on hypothetical ACO assignment during the baseline period.
Source: ACO Provider Research Identifiable Files for 2016-2018 and 2013-2018 Medicare claims data.

Exhibit 4-6. AIM ACO and Comparison Beneficiaries Spent Most Post-Acute Care Dollars on Home Health, 2018

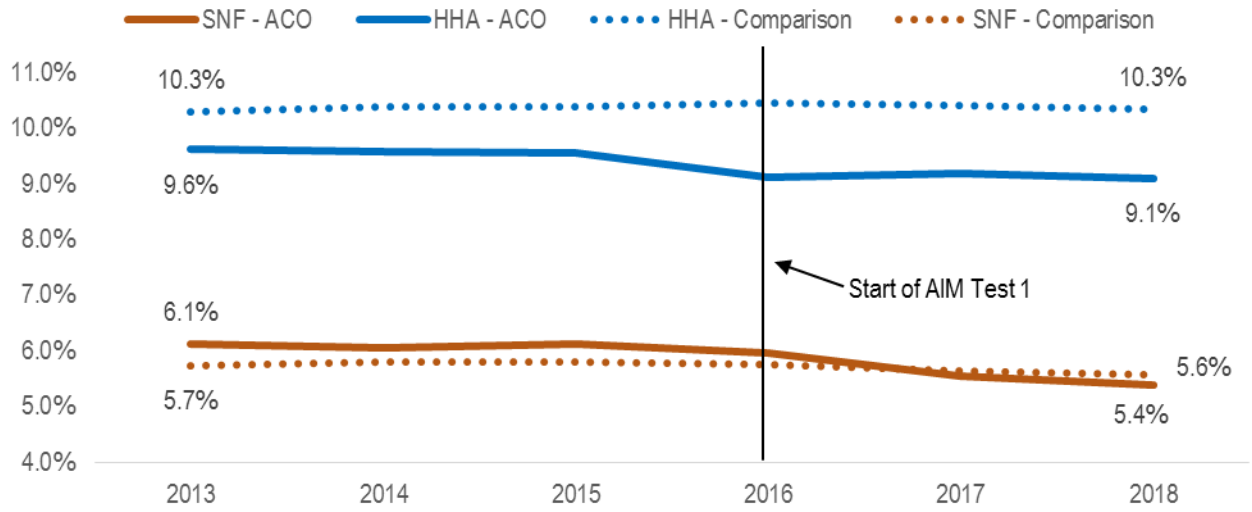


Note: Figures represents the percent of Medicare post-acute care spending by category for AIM ACO and non-FFS comparison beneficiaries, averaged across the 41 AIM Test 1 ACOs in 2018 (PY3). "Other" includes LTCH and IRF spending.
Source: ACO Provider Research Identifiable Files for 2016-2018 and 2013-2018 Medicare claims data.

AIM ACOs and post-acute care utilization Medicare post-acute care services include skilled nursing facilities (SNFs), home health agencies (HHAs), long-term care hospitals (LTCHs), and inpatient rehabilitation facilities (IRFs). The breakdown of Medicare post-acute spending by AIM ACO-assigned and non-ACO FFS comparison beneficiaries in the ACOs' markets is shown in **Exhibit 4-6**. SNF and HHA spending composed the vast majority of Medicare spending on post-acute care for both ACO and comparison beneficiaries. ACO beneficiaries spent a very similar share on HHAs (59.1 percent) as comparison beneficiaries (61.0 percent). The opposite was true for SNF shares – ACO beneficiaries spent a higher share (37.9 percent) than comparison beneficiaries (34.2 percent).[29] Spending on LTCH and IRF (combined into "Other") was small (less than 3 percent for AIM ACO beneficiaries and less than 5 percent for comparison beneficiaries).

The probabilities of using any HHA and SNF care decreased slightly over time for AIM ACO beneficiaries, while they remained steady for the non-ACO FFS comparison group beneficiaries, on average (**Exhibit 4-7**). This is consistent with results reported in **Chapter 3** on the reductions in Medicare SNF and HHA spending by AIM Test 1 ACOs. We note that that since Medicare coverage of SNF use requires a prior hospitalization (without a waiver), the decrease in acute hospitalizations (**Exhibit 4-5**) could lead to lower SNF use.

Exhibit 4-7. Utilization of Home Health and Skilled Nursing Facility Services Decreased Among AIM ACO Beneficiaries



Note: Figures represent the percent of ACO and non-ACO FFS comparison beneficiaries (separately) with any Medicare spending on skilled nursing facility (SNF) or home health agency (HHA) services averaged across the 41 AIM Test 1 ACOs. Figures for 2013 to 2015 represent the average baseline values for each corresponding performance year. Each performance year (2016 to 2018) represents performance year values for each year's ACO beneficiaries and comparison beneficiaries. See Chapter 3 for additional detail on hypothetical ACO assignment during the baseline period.
Source: ACO Provider Research Identifiable Files for 2016-2018 and 2013-2018 Medicare claims data.

[29] SSP ACOs that were participating in a two-sided financial risk track were able to apply to participate in the SNF 3-day Rule Waiver under which ACO beneficiaries can receive Medicare-covered SNF services without a prior 3-day hospitalization: https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Downloads/SNF-Waiver-Guidance.pdf. In 2018, three AIM ACOs (Sunshine ACO, PremierMD ACO, and North Mississippi Connected Care Alliance) were participating in the waiver. We did not find disproportionately higher SNF shares among beneficiaries assigned to these AIM ACOs.

As ascertained through interviews, more than half of the AIM ACOs had relationships with post-acute care providers (usually HHAs or SNFs) either within or external to their ACO networks. AIM ACO leadership discussed relationships with these providers as key strategic affiliations they expected to develop or expand as they gained experience in accountable care.

[In] our relationship with home health agencies, we are beginning to work with them to have a business agreement so if they are providing care to any of our providers' beneficiaries outside of [city], they notify us. We have shared information so they give us a heads-up that the beneficiary has been discharged.

We have developed a strong and robust network among those 74 providers in [city]… The relationships have been developed in the areas of SNF, home health, cardiology, gastroenterology, ophthalmology, and when it's a facility, it's home health or skilled facility or long-term care hospital.

We started those initial conversations with providers…in 2017…all the providers agreed to hire a post-acute liaison… The doctors were really paying attention and now we are able to hold the home health agencies a little more accountable. We have a specific resource now dedicated to [post-acute care coordination] to tackle our biggest spend areas.

AIM ACOs and Post-Acute Care Providers
Examples from Four AIM ACOs with Large PAC Spending Reductions

While we cannot definitively attribute reductions in PAC spending to the ACO's activities, examples from interviews with four AIM ACOs with large estimated reductions in HHA and SNF spending illustrated these ACOs' efforts to establish and expand relationships with post-acute care providers, to gain insights from Medicare data on their beneficiaries' utilization patterns, and to ensure use of appropriate care settings.

- One ACO reported receiving patient information, such as beneficiary care status and discharge notifications, from three HHAs with which it had formal agreements. This ACO built relationships with home health and hospice agencies by reaching out to the ACO's physician leaders and asking for recommendations of post-acute care providers that were high quality. In a later interview, respondents noted that the ACO had expanded its HHA relationships. In addition, this ACO reported trying to direct patients to HHAs, as opposed to SNFs, because home care was usually preferred by patients.
- An ACO reported that post-acute spending and overuse, specifically fraud and abuse in home health care, has been a significant problem. After reviewing Medicare data on their assigned beneficiaries' HHA utilization, this ACO began concerted efforts to reduce excessive HHA utilization. These efforts included education for local HHAs using data to show the high utilization and recertification rates in the market compared to national averages as well as provider education on appropriate use of HHA services. The ACO also used AIM funds to hire a post-acute care provider liaison to foster collaborations and partnerships with SNFs and HHAs in the area; interviewees emphasized that this care coordination was instrumental in reducing post-acute care use and expenditures and that patient outcomes have remained the same or improved.
- One AIM ACO attributed much of its success in obtaining shared savings to relationships with SNFs, assisted living centers, and participation in the state health information exchange (HIE). The HIE allowed this ACO to track patients from an acute stay to home or SNF care and follow patients' care status. This ACO also reported having a director of case management and a director of care coordination to ensure that each patient was discharged to the appropriate level of post-acute care to avoid wasteful spending. This ACO believed that the two directors overseeing post-acute care placement and care transitions had a positive impact on its shared savings.
- Lastly, one ACO reported a long-standing affiliation with tertiary care facilities as well as HHA, SNF, and hospice providers in the area. Interviewees reported that this ACO had also developed a formal affiliation with the local home health and hospice agency.

4.4. Relationship between Medicare Spending and Beneficiary ACO Assignment

We examined the extent of care beneficiaries received from AIM ACOs in terms of both the share of primary care allowed charges used for assignment and beneficiaries' total Medicare spending.[30] We then described the characteristics of beneficiaries who were assigned to AIM ACOs in multiple years compared to only one year and assessed how estimated impacts on total Medicare spending differed by continuity of assignment. Lastly, we investigated how the use of care management services, such as Annual Wellness Visits, affected ACO assignment.

[30] Beneficiaries were assigned to ACOs based upon plurality of primary care services, measured by Medicare allowed charges for eligible E&M visits (see **Appendix 1B** for detail on the beneficiary assignment algorithm). Allowed charges are the amount that practices or providers can charge for services under Medicare and includes the amount that Medicare pays, patient out-of-pocket costs, and third-party payer contributions. Plurality is based on primary care allowed charges to ensure that a complete picture of beneficiaries' primary care is used for ACO attribution. In contrast, throughout this report we focused on AIM's changes to Medicare's payment; allowed charges were only examined in reference to assignment of beneficiaries to ACOs.

4.4.1 ACOs provided a quarter of assigned beneficiaries' total Medicare spending

The share of AIM ACOs' beneficiaries who received care outside of the ACO in terms of allowed charges for primary care visits as well as total Medicare spending is shown in **Exhibit 4-8**. We found that, on average, more than 80 percent of primary care allowed charges were incurred with the beneficiaries' assigned ACO, but only about a quarter of overall Medicare spending was incurred with ACO participants.[31] These patterns were stable over time.

Exhibit 4-8: AIM ACO Beneficiaries Received 80 Percent of Primary Care and 25 Percent of Overall Care from ACO

	PY1 (2016)	PY2 (2017)	PY3 (2018)
Number of assigned beneficiaries	387,017	423,499	447,005
Allowed charges for primary care visits			
Percent incurred with AIM ACO participants	82.1%	81.4%	81.3%
Percent incurred with other providers	17.9%	18.6%	18.7%
Total Medicare spending			
Percent incurred with AIM ACO participants	24.5%	24.8%	25.0%
Percent incurred with other providers	75.5%	75.2%	75.0%

Note: Includes beneficiaries assigned to the 41 AIM Test 1 ACOs during each performance year (PY). Allowed charges are the amount that practices or providers can charge for services (under Medicare) and includes the amount that Medicare pays, patient out-of-pocket costs, and third-party payer contributions. Plurality of allowed charges for primary care visits determines how patients are assigned to ACOs (see Appendix 1B). Total Medicare spending includes all Medicare Parts A and B spending with the exception of spending on durable medical equipment (very small share of total spending for ACO beneficiaries).
Source: ACO Provider Research Identifiable Files for 2016-2018 and 2013-2018 Medicare claims data.

These findings were not surprising given that ACOs are primary care-focused, by definition, which is less expensive than secondary and tertiary care. It is also important to note that AIM ACOs reported existing relationships with entities outside of their ACO participants; thus, ACOs can influence medical care that would not be captured by examining the share of total Medicare spending incurred with ACO participants only. At the same time, most of their assigned beneficiaries' care is outside ACOs' direct control.

4.4.2 ACO continuous assignment and differential impacts on total Medicare spending

We next sought to determine whether the impacts of total Medicare spending differed for beneficiaries based on their level of interaction with the ACO. Our analysis was based on beneficiaries assigned in 2016, and we examined the beneficiaries' characteristics as of 2016. We categorized beneficiaries by whether they were assigned to the AIM ACOs for one year only or for two or more consecutive years (i.e., PY1 only, PY1 and PY2, or over all three performance years) and examined beneficiary characteristics by category (**Exhibit 4-9**). Beneficiaries who were assigned to an AIM ACO for only one year due to death in the year may have fundamentally differed from those who were assigned for only one year due to other reasons such as changing the doctor from whom they received the preponderance of their care. We thus separated beneficiaries assigned only in 2016 by whether they died during the year. Note that we omitted from the exhibit the small share of beneficiaries who were assigned in PY1 and PY3 but not PY2 (5.9 percent of assigned beneficiaries) to limit to beneficiaries who were continuously assigned to the ACO.

As shown in **Exhibit 4-9**, we found that almost half of beneficiaries (47.0 percent) in 2016 were assigned to the same AIM ACO in all three years. Beneficiaries only assigned for one year were more costly than those assigned for multiple years, especially the 3.9 percent of beneficiaries who died in 2016. Mean

[31] We excluded Medicare spending on durable medical equipment (DME) when calculating this percentage since ACO participants were not DME providers; DME constituted a very small share of the AIM ACOs' assigned beneficiary Medicare spending.

unadjusted PBPM Medicare payments were $920.10 for beneficiaries who were only assigned in 2016 and did not die in the year; in contrast, mean payments were $670.46 among beneficiaries who were assigned for all three years. It may be that beneficiaries who were ill in 2016 (and thus more costly) might have used more specialized care in the following year, resulting in decreased likelihood of plurality of primary care with the ACO and thus were not "assigned" to the ACO in that year. Note that the mortality rates were zero for those assigned over multiple years since characteristics in the exhibit represented 2016 values. The higher costs of the 2016-only assigned beneficiaries were reflected across almost all dimensions – greater utilization of costly services (hospital, ED, and SNF), worse health (risk scores, ESRD, disability), and greater vulnerability (more likely to be dual eligible for Medicare and Medicaid) compared to beneficiaries assigned for multiple years. Generally, the pattern continued for two versus three years of assignment—those assigned for all three years were less costly and healthier than those assigned for two consecutive years.[32]

Exhibit 4-9. Healthier and Less Costly AIM ACO Beneficiaries Tended to be Assigned for Multiple Years, Unadjusted Characteristics in 2016

Characteristics in 2016	Assigned Only in 2016	Assigned Only in 2016: Died	Assigned in 2016-2017	Assigned in 2016-2018
Number of assigned beneficiaries (% of total)	91,797 (23.7%)	15,080 (3.9%)	75,571 (19.5%)	181,751 (47.0%)
Female	56.3%	53.3%	56.9%	57.3%
Average age	70.0	79.8	71.4	71.4
White	86.3%	90.1%	86.3%	88.9%
Black	7.1%	5.7%	7.9%	6.2%
Hispanic	3.4%	2.3%	3.0%	2.2%
Other race	3.2%	2.0%	2.8%	2.7%
Disabled	30.0%	21.7%	27.5%	23.5%
End Stage Renal Disease (ESRD) Medicare entitlement	1.2%	3.5%	1.0%	0.5%
Medicaid dual eligibility	26.2%	33.0%	25.7%	19.2%
Average HCC risk score	0.98	1.71	1.02	0.91
Number of chronic conditions	2.18	3.38	2.36	2.33
Mean unadjusted PBPM Medicare payment	$920.10	$4,766.84	$859.58	$670.46
Any inpatient visits	19.8%	69.7%	19.4%	15.5%
Any ED visits	27.9%	33.3%	28.1%	25.8%
SNF days	2.6	9.8	2.1	1.0
Long-term institutional facility	2.2%	12.4%	2.3%	1.0%
Died	0.0%	100.0%	0.0%	0.0%

Note: This table shows characteristics for beneficiaries assigned to the 41 AIM Test 1 ACOs in 2016 (PY1) broken down by whether the beneficiary was assigned in one or multiple years. Excluded from the table were beneficiaries assigned in PY1 and PY3, but not PY2. These beneficiaries composed 5.9 percent of assigned beneficiaries and were excluded to show only continuously assigned beneficiaries.
Source: ACO Provider Research Identifiable Files for 2016–2018 combined with Medicare claims data.

We next re-ran the AIM Test 1 impact regression model on total Medicare spending (see **Chapter 3**) with an additional heterogeneous treatment flag to examine the differential changes in Medicare spending for

[32] These findings are consistent with a recent MedPAC report, which found that beneficiaries who were not continuously assigned to the ACO tended to be costlier, more likely to have a hospitalization, and had growing risk scores (MedPAC. "Assessing the Medicare Shared Savings Program's effect on Medicare spending". January 2019. P. 178.)

ACOs' beneficiaries depending on whether they were attributed to the ACO continuously or not. That is, the ACO indicator during the performance year was separated into multiple flags based on the beneficiaries' continuous assignment status. We ran the regression for PY3 (2018) since we wished to know the differential impacts after beneficiaries could have been assigned for multiple years.[33] The characteristics of beneficiaries assigned in PY3 by continuous assignment status are shown in **Appendix 4B**. **Exhibit 4-10** displays the estimated coefficients on total Medicare spending for beneficiaries who were assigned in all three performance years, two continuous performance years, and one performance year . We found that beneficiaries assigned to AIM ACOs continuously for three years had the highest estimated reductions (-$78.06 PBPM statistically significant at the 5 percent level). Those assigned for two consecutive years had statistically significant reductions in 2018 only (-$46.55 PBPM) while those assigned only in one year were estimated to have an increase in Medicare spending ($13.25 PBPM).

Exhibit 4-10: Continuously Assigned Beneficiaries Were Associated with Greater Differential Reductions in PBPM Medicare Spending in 2018

Note: Bars represent the heterogeneous effect of AIM ACO by number of years the beneficiary was assigned between 2016-2018 using the DID impact methodology that compared the 41 AIM Test 1 ACO assigned beneficiaries to non-ACO FFS beneficiaries residing in the AIM ACOs' markets in performance year 2018. The baseline period was 2013 to 2015. Consecutive assignment for the 2018 (PY3) performance year was 2017 and 2018 (two years) and 2016 to 2018 (three years). We excluded beneficiaries who were not continuously assigned to the ACO (this was around 5 percent of the total samples). *Indicates statistical significance at the 5 percent level.
Source: ACO Provider Research Identifiable Files for 2016-2018 and Medicare claims data from 2013-2018.

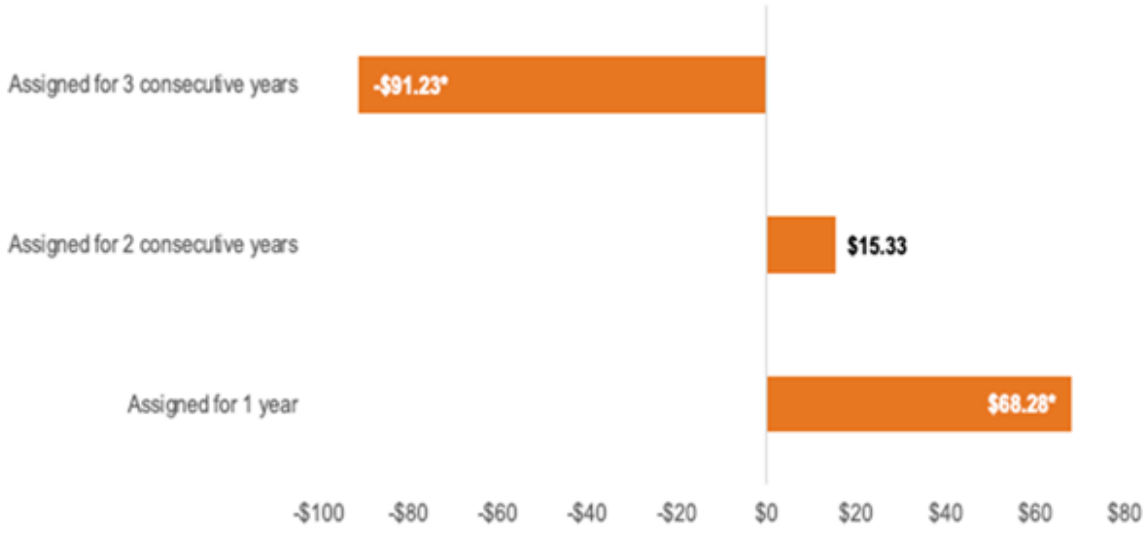
The findings in **Exhibit 4-10** would be consistent with AIM ACOs being able to reduce total Medicare spending to a greater extent among beneficiaries with whom they had greater exposure over time. However, as shown in **Exhibit 4-11**, the findings for 2016 (PY1) show that beneficiaries who *would* be assigned for all three years were more likely to have reduced Medicare spending even in 2016.[34] That is, we are not able to disentangle whether AIM ACOs were able to reduce Medicare spending to a greater extent for continuously assigned beneficiaries or whether beneficiaries for whom cost could be lowered or were already lower (due to being in better health, for example) were more likely to be attributed to the

[33] The characteristics for PY3 (2018) by assignment category were roughly similar to those for PY1 (2016). **Appendix 4B** shows the analogous data using beneficiaries assigned in PY3.

[34] The 2017 (PY2) findings for beneficiaries assigned in one year only or two consecutive years PY2 are shown in **Appendix 4C** and display a similar pattern.

ACO over multiple years. The next section examines how the provision of Medicare's Annual Wellness Visit and other care management services could influence beneficiary assignment to ACOs.

Exhibit 4-11: Continuously Assigned Beneficiaries Were Associated with Greater Differential Reductions in PBPM Medicare Spending in 2016



Note: Bars represent the heterogeneous effect of AIM ACO by number of years the beneficiary was assigned between 2016-2018 using the DID impact methodology that compared the 41 AIM Test 1 ACO assigned beneficiaries to non-ACO FFS beneficiaries residing in the AIM ACOs' markets in performance years 2016. The baseline period was 2013 to 2015. Consecutive assignment for the 2016 (PY1) performance year was 2016 and 2017 (two years) and 2016 to 2018 (three years). We excluded beneficiaries who were not continuously assigned to the ACO (this was around 5 percent of the total samples). *Indicates statistical significance at the 5 percent level.
Source: ACO Provider Research Identifiable Files for 2016-2018 and Medicare claims data from 2013-2018.

4.4.3 Use of care management services and effects on beneficiary assignment to ACOs

AIM ACOs emphasized the role of care management services

During interviews with AIM ACO representatives, we learned that promoting the use of the following care management services was the focus of many ACOs' care management efforts. The procedure codes used to identify these visits are listed in **Appendix 4D**.

- **Annual Wellness Visits (AWVs)** can be provided annually to Medicare beneficiaries who have been enrolled in Medicare for at least 12 months.
- **Chronic Care Management (CCMs) visits** are intended to help patients manage their chronic illnesses and may be provided to beneficiaries with two or more chronic conditions expected to last more than a year.
- **Transitional Care Management (TCMs) services** are intended to help patients with transitions from an inpatient to a community setting within seven or 14 days of discharge.

ACO representatives discussed targeting care management services and outreach to beneficiaries eligible to receive services (beneficiaries who had not previously received AWVs during the year, those with two or more chronic conditions, and those who had been discharged from an acute care stay). They reported using claims data or reports derived from claims to identify and prioritize patients for care management. For those AIM ACOs working with one, management companies provided analytic support for identifying beneficiaries for care management and monitoring of outcome metrics.

AIM ACO interviewees reported that care managers conducted outreach, scheduling, and education with patients. Care managers did this through a variety of mechanisms such as by phone, in the physician's office, and even via home visits. The types of interactions varied by patient populations and physician practices within the same ACO. Some AIM ACO interviewees discussed modifying or refining their care management programs in the second year of AIM based on what they had learned from their experiences in the first year of the model. These modifications or refinements included:

- Focusing on advance care planning in the second year of AIM;
- Hiring additional care coordinators and increasing existing care coordinators' full-time equivalent status;
- Focusing on additional care coordination activities (e.g., CCM or coordinating behavioral health care);
- Prioritizing different patient populations (e.g., switching from a focus on highest severity to low- and medium-severity patients);
- Paring back internal ACO expectations for providers (e.g., relaxing AWV requirements); and
- Testing the right time to "graduate" patients from care management.

Representatives from a few AIM ACOs discussed barriers or delays to full implementation of their care management programs resulting from difficulty in changing provider and patient behavior. While these ACOs did not abandon their plans to implement care management programs, some noted that change was taking longer than they initially anticipated or required additional provider and patient education.

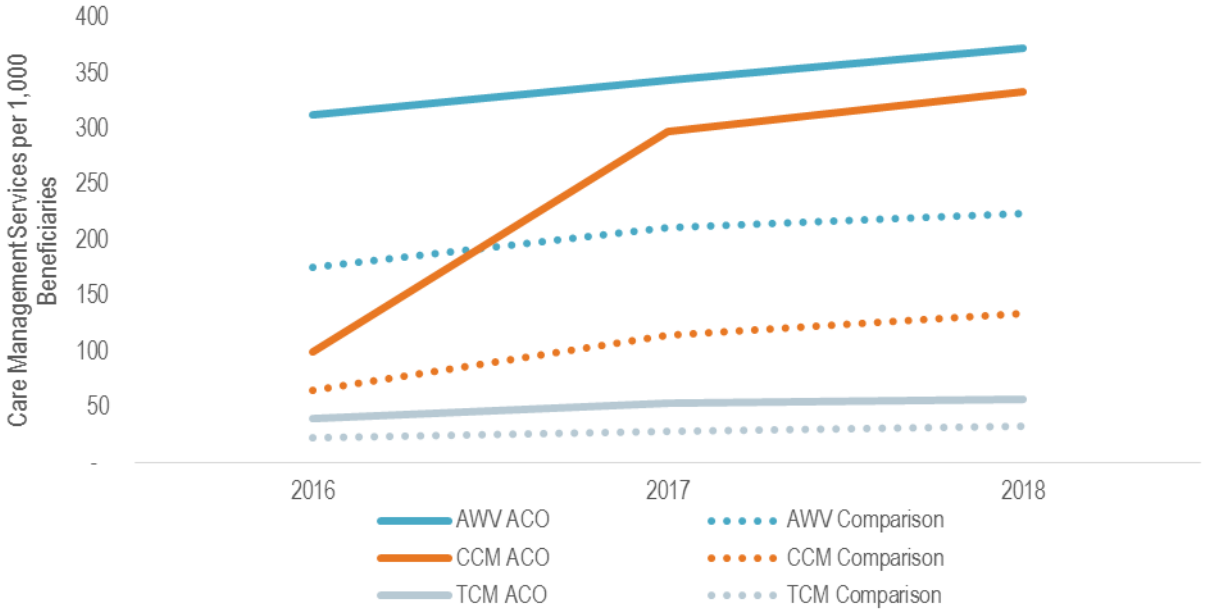
AIM ACO beneficiaries use of care management services increased and were provided by the ACO

We previously reported finding that AIM ACO beneficiaries received substantially more care management services than non-ACO FFS comparison beneficiaries in 2016 and 2017, with the differences increasing over time.[35] In the previous evaluation report, we noted these findings could affect beneficiary assignment to ACOs – increasing provision of these services by an ACO could increase the chances that beneficiaries will be assigned to the ACO. Below, we explore the relationship between provision of care management services and selection of beneficiaries for assignment. Note that selection need not be intentional by AIM ACOs and may be overall beneficial. For instance, if using CCM services establishes coordinated and continued care for chronic conditions, which is further enhanced by ACO assignment, then the interaction helps to achieve a goal of AIM. Beneficiary selection may also be intentional to achieve a similar goal, but also, alternatively, to attract healthier, less costly beneficiaries to help the ACO meet financial benchmarks for shared savings.

Of the three care management services, AWVs were the most common, followed by CCM and TCM services (**Exhibit 4-12**). Use of all three care management services increased over time, with a sharp increase in CCM services occurring in 2017. AIM ACO beneficiaries used all services at a higher rate than non-ACO FFS comparison beneficiaries.

[35] "Second Annual AIM Evaluation Report," 2019. https://innovation.cms.gov/initiatives/ACO-Investment-Model/

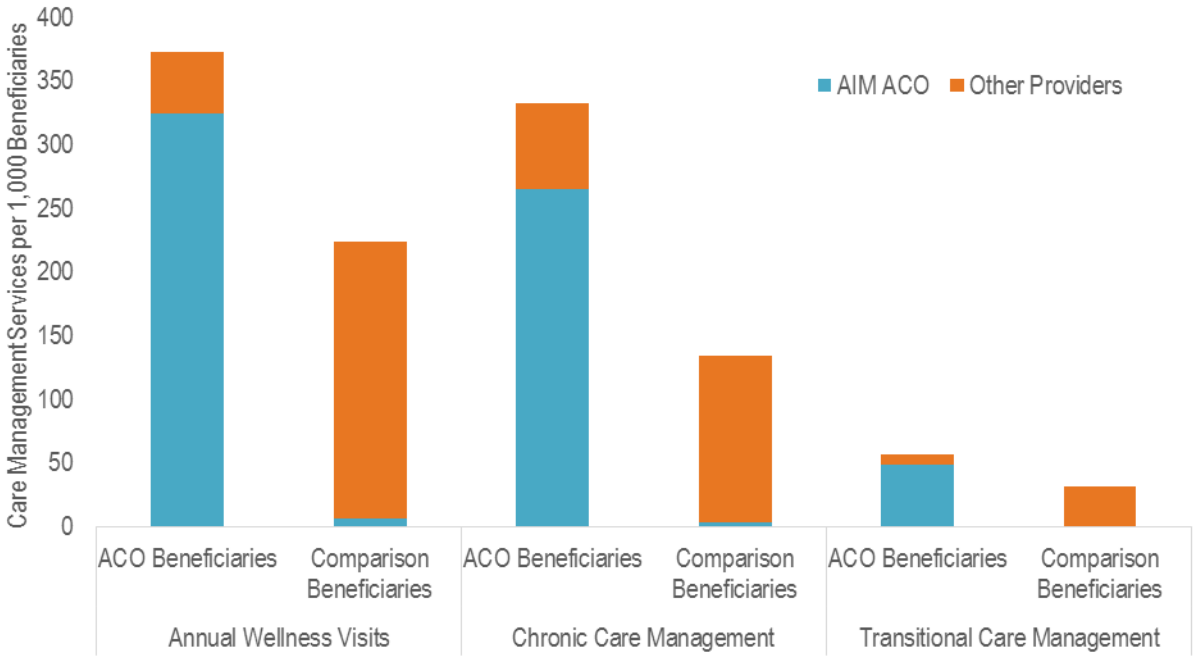
Exhibit 4-12. Use of Care Management Services was Greater among AIM ACO Assigned Beneficiaries and Grew Over Time



Note: This figure shows visits for care management services per 1,000 beneficiaries for beneficiaries assigned to the 45 AIM ACOs that remained in AIM all three years and non-ACO FFS comparison beneficiaries in the ACOs' markets from 2016 to 2018.
Source: ACO Provider Research Identifiable Files for 2016–2018 combined with Medicare claims data.

Exhibit 4-13 shows that AIM ACO-assigned beneficiaries received the majority of care management services from AIM ACO participants, rather than from entities outside of the ACO. Conversely, non-ACO FFS comparison beneficiaries received the vast majority of these services from non-ACO entities. The exhibit displays the volume of services, per 1,000 beneficiaries, according to whether or not the entity providing the service was affiliated with the AIM ACO to which the beneficiary was assigned (same AIM ACO). The exhibit demonstrates that care management services were overwhelmingly provided by AIM ACO participants to their assigned beneficiaries and by other providers to non-ACO FFS comparison beneficiaries.

Exhibit 4-13. AIM ACO Beneficiaries Received Majority of Care Management Services from ACO Participants, 2018



Note: This figure shows utilization of care management services in 2018 by ACO affiliation of the service provider for beneficiaries assigned to the 45 AIM ACOs that remained in AIM all three years and non-ACO FFS comparison beneficiaries residing in the ACOs' markets.
Source: ACO Provider Research Identifiable Files for 2018 combined with Medicare claims data.

Annual Wellness Visits were a substantial portion of the care used to determine assignment

Next, we investigated whether spending on care management services could influence plurality of allowed charges for primary care visits, thereby affecting ACO assignment. To do so, we calculated the amount of allowed charges associated with care management services for AIM ACO and non-ACO FFS comparison beneficiaries. These allowed charges were a subset of the total allowed charges for primary care visits that were used to assign beneficiaries to ACOs.

Allowed charges for AWVs were $148 for AIM ACO beneficiaries and $132 for non-ACO comparison beneficiaries, on average, as shown in **Exhibit 4-14**. Among beneficiaries with AWVs, the total primary care allowed charges were $723 and $554, on average, for AIM ACO and non-ACO FFS comparison beneficiaries, respectively. On average, the share of total primary care allowed charges for AWVs was 20.5 percent. While not the majority of allowed charges used for assignment, it could be sufficient for influencing ACO attribution for some beneficiaries. **Exhibit 4-14** also shows that the average allowed charges for beneficiaries without any AWVs was $690 for AIM ACO-assigned beneficiaries and $587 for non-ACO FFS comparison beneficiaries. Adding AWVs would result in a similar share of total allowed charges used for assignment.

Exhibit 4-14. Annual Wellness Visit Charges Were a Substantive Share of Total Charges Used for ACO Attribution, 2018

	Had Annual Wellness Visit		Did Not Have Annual Wellness Visit	
	AIM ACO	Comparison	AIM ACO	Comparison
(1) Allowed charges for Annual Wellness Visits	$148	$132	$0	$0
(2) All primary care allowed charges	$723	$554	$690	$587
Percent (1)/(2)	20.5%	23.8%	-	-

Note: Figures are mean allowed charges for beneficiaries assigned to AIM ACOs and comparison beneficiaries identified for 45 AIM ACOs in 2018.
Source: ACO Provider Research Identifiable Files for 2018 combined with Medicare claims data.

The analogous findings for CCM and TCM visits (combined) are provided in **Appendix 4E**. Relative to AWVs, beneficiaries receiving CCM and TCM services also had a higher overall primary care allowed charges. As a result, the percent of beneficiaries for which CCM or TCM allowed charges were a substantial enough share to affect assignment was similar for beneficiaries using these services.

Use of care management services and AIM ACO assignment in the following year

The provision of AWVs could have established or furthered the patient-provider relationship, led to continued care, and, as a byproduct, continued assignment in the next year. Similarly, CCM services could have established continuity of care for a population of patients who may have benefited from multi-year assignment. TCM services require a hospitalization and would therefore be difficult for ACO participants to affect when they occur; we thus excluded TCM services from the analyses below.

We found that beneficiaries who received AWV or CCM services were more likely to be reassigned in the following year than those who do not (**Exhibit 4-15**). Of AIM ACO beneficiaries using AWV services, 74 percent were re-assigned in the following year while 61 percent of beneficiaries not using AWVs were reassigned. The overall re-assignment rate was 66 percent. Those with CCM visits had a slightly greater likelihood of multiyear assignment, but not as high as those with AWVs. It is important to note that these figures were not conditioned on patient characteristics, and beneficiaries receiving AWVs and CCM visits may systematically differ from each other as well as beneficiaries who did not receive these services.

Exhibit 4-15. Reassignment to AIM ACOs was Highest Among Beneficiaries using Annual Wellness Visits

	Number of AIM ACO Beneficiaries in 2017	Percent Reassigned in 2018
All AIM ACO beneficiaries	446,699	66%
Annual Wellness Visit		
With an Annual Wellness Visit	164,086	74%
No Annual Wellness Visits	282,613	61%
Chronic Condition Management		
With a Chronic Condition Management visit	28,688	69%
No Chronic Condition Management visits	418,011	65%

Note: Figures include beneficiaries assigned to the 45 AIM ACOs in 2017.
Source: ACO Provider Research Identifiable Files for 2017 and 2018 combined with Medicare claims data.

No evidence that AIM ACOs selected beneficiaries through Annual Wellness Visits based on timing

In a 2019 report, MedPAC stated that "ACOs were more likely to have the AWV scheduled in the last quarter (of the calendar year)" and that this pattern may demonstrate "ACOs' attempts to achieve

favorable selection by bringing patients in for wellness visits to keep the relatively healthy beneficiaries assigned to the ACO" (MedPAC, 2019).[36] To investigate similar patterns among AIM ACOs' beneficiaries who had AWVs, we calculated the proportion who had an AWV visit by quarter (**Exhibit 4-16**). We found that greater than 25 percent of AWVs were provided in the fourth quarter, but this rate was similar among comparison non-ACO FFS beneficiaries, as well as similar to the last year of the baseline period before AIM. These results suggested that the provision of AWVs toward the end of the calendar year is not related to ACO assignment for AIM ACOs.

Exhibit 4-16. More Beneficiaries Use Annual Wellness Visits in the Last Quarter of the Year Unrelated to ACO Assignment

Quarter of Service	AIM ACO Beneficiaries 2018	Comparison Beneficiaries, 2018	AIM ACO Beneficiaries, 2015
First quarter	21%	22%	21%
Second quarter	25%	25%	24%
Third quarter	25%	24%	26%
Fourth quarter	29%	28%	30%

Note: Figures include beneficiaries assigned to the 41 AIM Test 1 ACOs and comparison beneficiaries who received Annual Wellness Visits in 2015 (prior to AIM) and in 2018.
Source: ACO Provider Research Identifiable Files for 2015 and 2018 combined with Medicare claims data.

Management companies supported identification of beneficiaries for, and provision of, care management services. However, we observed similar proportions of fourth quarter AWV utilization for ACOs with and without management company affiliations in the year prior to AIM and during the third performance year (**Exhibit 4-17**). Thus, a higher proportion of AWVs in the fourth quarter, compared to earlier quarters, may be driven by factors separate from the intent to influence ACO assignment, such as seasonality and end-of-year plan benefit incentives for the beneficiary.

Exhibit 4-17. Percentage of Annual Wellness Visits Provided in Fourth Quarter of Calendar Year by Affiliation with a Management Company

Note: This figure shows provision of Annual Wellness Visits in the fourth quarter of the calendar year, conditional on receiving an annual wellness visit within the calendar year and on ACO affiliation of the service provider for beneficiaries hypothetically assigned at baseline to the 41 AIM Test 1 ACOs in 2015 or assigned to an AIM ACO in 2018 (PY3).
Source: ACO Provider Research Identifiable Files for 2018 combined with Medicare claims data.

[36] http://www.medpac.gov/docs/default-source/reports/jun19_ch6_medpac_reporttocongress_sec.pdf?sfvrsn=0

4.5. Medicare Part D Spending and AIM ACOs

Under the Shared Savings Program, Medicare spending used to calculate financial benchmarks and shared savings are based on Medicare Parts A and B covered services only. Prescription drug spending covered under the optional prescription drug benefit, Medicare Part D, is not considered. In 2017, 59.2 percent of Medicare FFS beneficiaries were enrolled in Part D, and Part D spending accounted for 17.2 percent of Medicare spending.[37] ACOs might affect prescription drug use (and therefore Part D spending) directly through their initiatives to provide better, coordinated care or indirectly as a result of beneficiaries' changing health and utilization of Parts A and B services. The direction of the impact is unclear. For example, ACOs' efforts to decrease Parts A and B spending may result in substitution toward greater prescription drug use or increased quality of care may lead to overall reductions in medical and prescription drug spending.[38] In this section, we explore the AIM Test 1 ACO effects on Medicare Part D spending, which only includes costs to the Medicare program of prescription drugs and not any manufacturer rebates.

4.5.1 Most AIM ACO beneficiaries were enrolled in Part D, and Medicare Part D spending increased over time

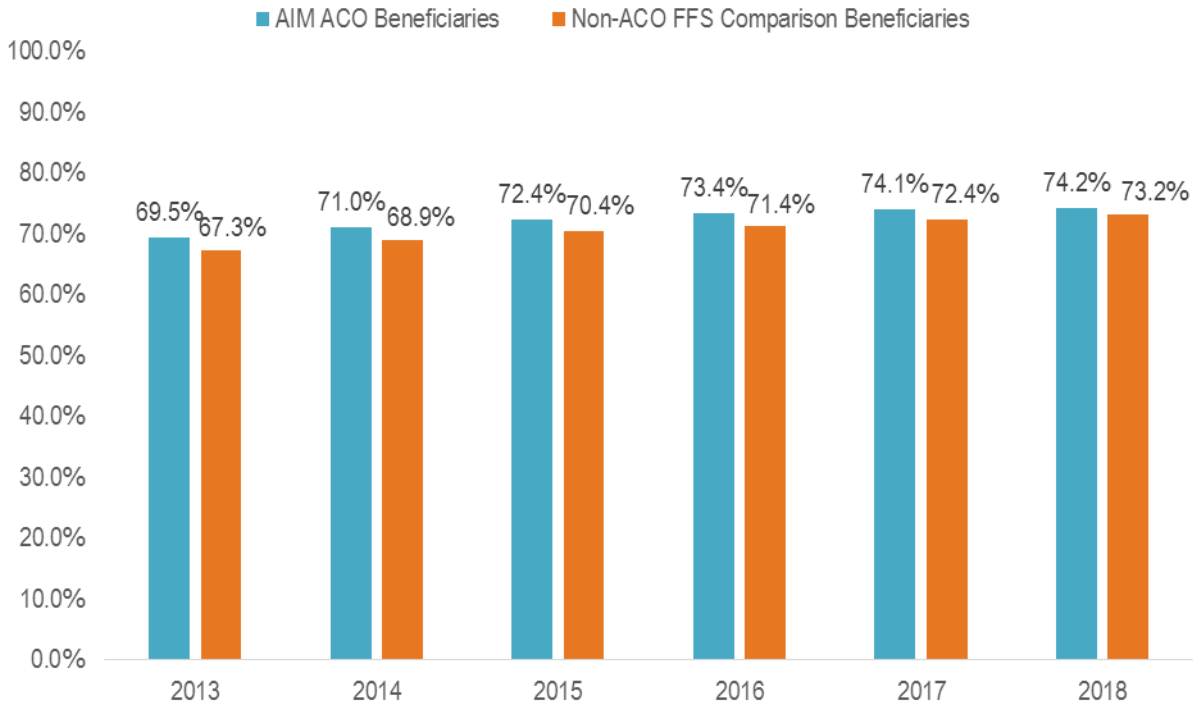
We defined Part D enrollment as beneficiaries enrolled during each month they were eligible for ACO assignment. A small share of beneficiaries (approximately 2 percent) were partially enrolled in Part D for fewer than their eligible months. For these analyses, we did not count them as enrolled in Part D. Part D enrollment increased steadily over time among both the ACO and comparison populations. Enrollment was consistently higher among ACO beneficiaries than comparison beneficiaries (**Exhibit 4-18**), although differences were small. In 2018, 74.2 percent of AIM ACO beneficiaries were enrolled in Part D, compared to 73.2 percent among non-ACO FFS comparison beneficiaries.

---

37 "The Medicare prescription drug program (Part D): Status Report", MedPAC, 2019. http://medpac.gov/docs/default-source/reports/mar19_medpac_ch14_sec.pdf?sfvrsn=0. The Part D spending percentage was calculated by dividing the total Medicare Part D spending by total Medicare Part A, B, and D spending for FFS beneficiaries in 2017.

38 McWilliams JM, Zaslavsky AM, Huskamp HA. Implementation of Medicare Part D and Nondrug Medical Spending for Elderly Adults with Limited Prior Drug Coverage. *JAMA.* 2011;306(4):402–409. doi:10.1001/jama.2011.1026

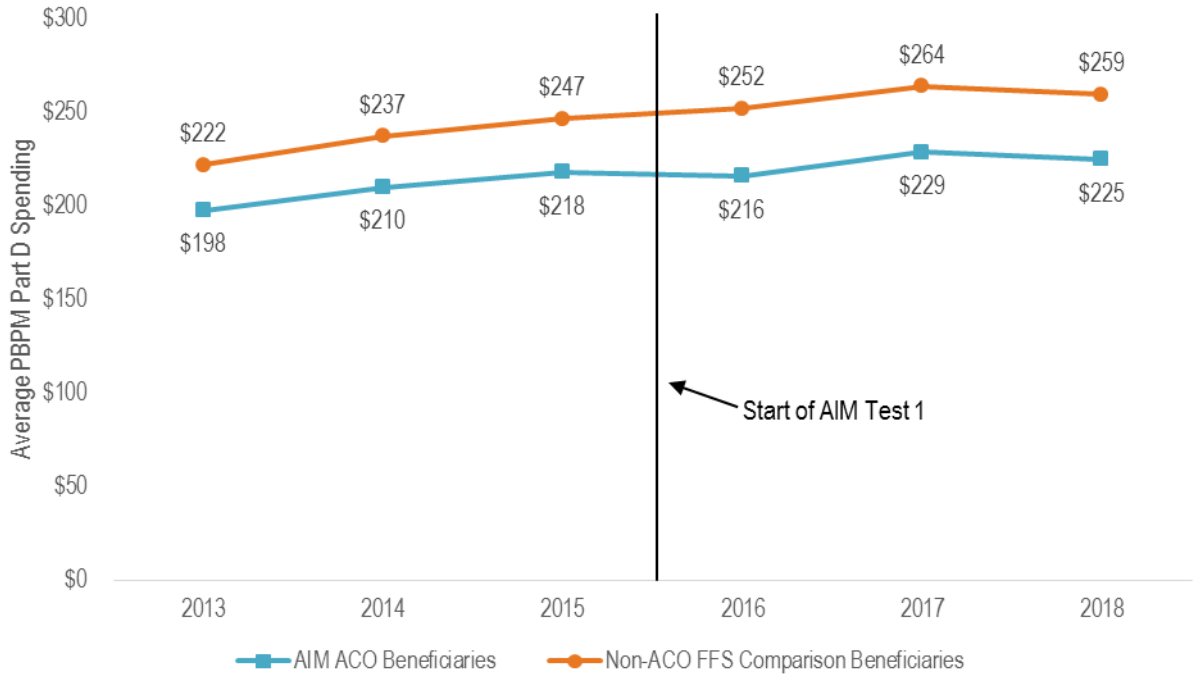
Exhibit 4-18: Consistently Higher Enrollment in Medicare Part D Among AIM Test 1 ACO Beneficiaries than Non-ACO Comparison Beneficiaries



Note: Shows the percent of beneficiaries assigned to the 41 AIM Test 1 ACOs and non-ACO FFS beneficiaries residing in the ACOs' markets who were enrolled in Medicare Part D for all eligible months. Figures for 2013 to 2015 represent the average baseline values for each corresponding performance year. Each performance year (2016 to 2018) represents performance year values for each year's ACO beneficiaries and comparison beneficiaries. See Chapter 3 for additional detail on hypothetical ACO assignment during the baseline period.
Source: ACO Provider Research Identifiable Files for 2016-2018 combined with Medicare enrollment and claims data.

We found that unadjusted per beneficiary per month (PBPM) Medicare Part D spending generally increased over time from 2013 to 2017 and slightly decreased in 2018. PBPM Part D spending was consistently lower for AIM ACO beneficiaries compared to non-ACO FFS comparison group beneficiaries, though both increased over time (**Exhibit 4-19**).

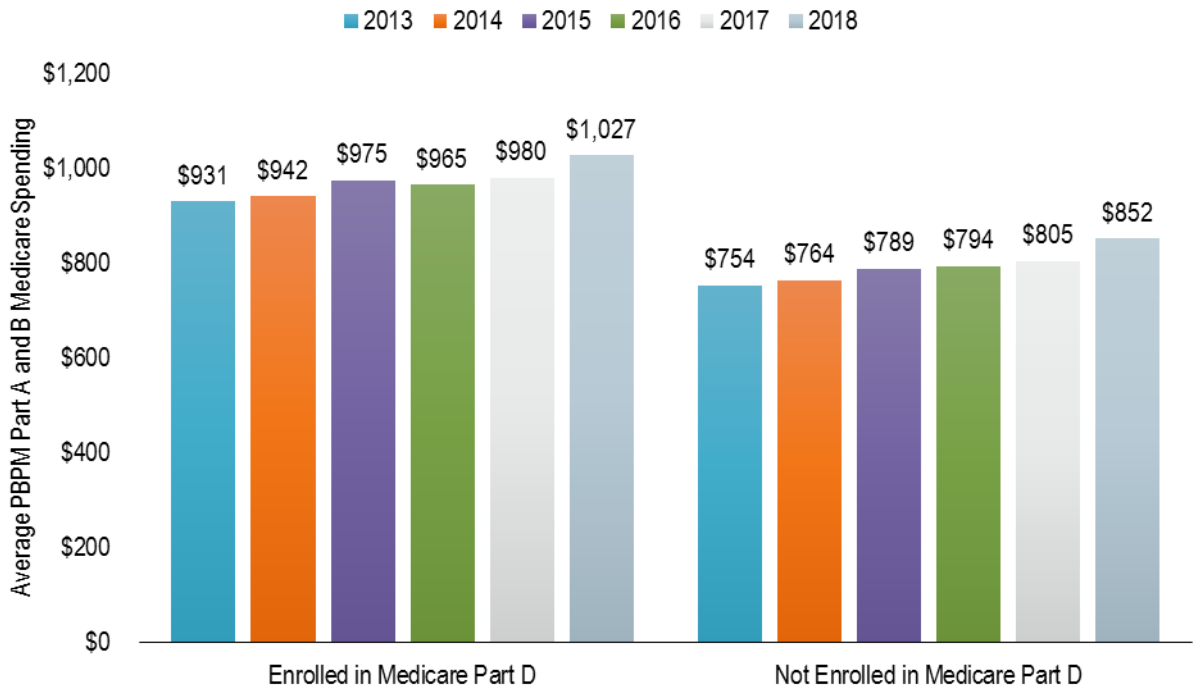
Exhibit 4-19: Medicare Part D Per Beneficiary Per Month Spending increased



Note: Shows the average spending among beneficiaries in the 41 AIM Test 1 ACOs and non-ACO FFS beneficiaries residing in the ACOs' markets who were enrolled in Medicare Part D for all eligible months. Figures for 2013 to 2015 represent the average baseline values for each corresponding performance year. Each performance year (2016 to 2018) represents performance year values for each year's ACO beneficiaries and comparison beneficiaries. See Chapter 3 for additional detail on hypothetical ACO assignment during the baseline period.
Source: ACO Provider Research Identifiable Files for 2016-2018 combined with Medicare enrollment and claims data.

AIM ACO beneficiaries enrolled in Part D tended to have higher Medicare Parts A and B spending than those not enrolled in Part D (**Exhibit 4-20**). In 2018, AIM ACO beneficiaries enrolled in Part D spent $1,027 PBPM on Part A and B, and those not enrolled in Part D spent $852 PBPM, on average (a difference of 20.5 percent). Parts A and B spending increased over time for both groups of AIM ACO beneficiaries.

Exhibit 4-20: Higher Parts A and B Medicare Spending Among AIM Test 1 ACO Beneficiaries Enrolled in Part D



Note: Figures for 2013 to 2015 represent the average baseline values for each corresponding performance year. Each performance year (2016 to 2018) represents performance year values for each year's ACO beneficiaries and comparison beneficiaries. See Chapter 3 for additional detail on hypothetical ACO assignment during the baseline period.
Source: ACO Provider Research Identifiable Files for 2016-2018 combined with Medicare enrollment and claims data.

4.5.2 Evidence of AIM ACOs lowering Medicare Part D spending

We next applied the same DID analytic approach as described in **Chapter 3** to AIM Test 1 ACOs and non-ACO FFS comparison beneficiaries enrolled in Medicare Part D. **Exhibit 4-21** shows the regression-adjusted average Medicare Part D spending for ACO and non-ACO FFS comparison beneficiaries in the baseline and performance years for each performance year. As shown in the last column of **Exhibit 4-21**, we estimated differential reductions in Medicare Part D spending between AIM and non-ACO FFS comparison beneficiaries in all three performance years. The reductions were statistically significant at the 5 percent level in PY1 and PY3 but not PY2. Estimates in all three years passed the parallel trends assumption needed to support validity of the DID approach.

Exhibit 4-21. AIM ACOs Reduced Medicare Part D Spending More than the Comparison Group between Baseline and Performance Years

	AIM			Comparison			Difference-in-Differences
	Performance	Baseline	Difference (Perf-Base)	Performance	Baseline	Difference (Perf-Base)	
PY1 (2016)	$198.60	$210.53	-$11.93	$204.26	$213.09	-$8.83	-$3.11* (-5.42 to -0.80)
PY2 (2017)	$200.66	$221.48	-$20.81	$203.05	$222.24	-$19.19	-$1.63 (-5.19 to 1.94)
PY3 (2018)	$197.40	$218.15	-$20.75	$200.98	$216.29	-$15.31	-$5.44* (-10.19 to -0.69)

Note: Findings are for 41 AIM Test 1 ACOs. DID impact findings on Medicare Part D spending estimated from comparing AIM Test 1 ACO assigned beneficiaries to non-ACO FFS beneficiaries residing in the AIM ACOs' markets for those enrolled in Medicare Part D. Dollars are per beneficiary per month (PBPM). Performance Years 1-3 are 2016-2018, respectively. The baseline period is 2013-2015. 95% confidence intervals are shown in parentheses; * indicates statistical significance at the 5 percent level.
Source: ACO Provider Research Identifiable Files for 2016-2018 and 2013-2018 Medicare claims and enrollment data.

We also estimated impacts on Medicare Parts A, B, and D combined spending for the ACO and non-ACO FFS comparison beneficiaries enrolled in Part D (**Exhibit 4-22**). We estimated statistically significant reductions in all three years, and the estimates were generally consistent in magnitude with the reductions in Parts A and B spending estimated for the full AIM Test 1 ACO and comparison group beneficiaries (see **Chapter 3**). These findings demonstrated that, for the Part D enrolled population, the impact of AIM was similar to the impact for the full population.

Exhibit 4-22. AIM ACOs Reduced Medicare Part A, B, and D Spending More than the Comparison Group between Baseline and Performance Years (Per Beneficiary Per Month)

	AIM			Comparison			Difference-in-Differences
	Performance	Baseline	Difference (Perf-Base)	Performance	Baseline	Difference (Perf-Base)	
PY1 (2016)	$1,141.15	$1,199.76	-$58.60	$1,163.22	$1,191.31	-$28.09	-$30.51* (-42.50 to -18.52)
PY2 (2017)	$1,134.46	$1,213.60	-$79.15	$1,163.95	$1,209.06	-$45.11	-$34.04* (-47.59 to -20.49)
PY3 (2018)	$1,159.41	$1,218.36	-$58.95	$1,185.27	$1,199.01	-$13.74	-$45.21* (-62.25 to -28.16)

Note: Findings are for 41 AIM Test 1 ACOs. DID impact findings on Medicare Parts A, B, and D spending estimated from comparing AIM Test 1 ACO assigned beneficiaries to non-ACO FFS beneficiaries residing in the AIM ACOs' markets for those enrolled in Medicare Part D. Dollars are per beneficiary per month (PBPM). Performance Years 1-3 are 2016-2018, respectively. The baseline period is 2013-2015. 95% confidence intervals are shown in parentheses; * indicates statistical significance at the 5 percent level.
Source: ACO Provider Research Identifiable Files for 2016-2018 and 2013-2018 Medicare claims and enrollment data.

5. Growth and Turnover in ACOs and Implications for Evaluation

Although the Shared Savings Program allows for a broad definition of an ACO in terms of types of participants, beneficiaries are assigned to ACOs based only on certain types of care received by certain types of health care providers. ACOs may add or remove participants each year and the evolving definition of the ACO can in turn affect the types of beneficiaries assigned to them. In this section, we examined AIM ACOs in terms of their official participant list in contrast to the providers that actually determine which beneficiaries were assigned. We then assessed turnover in ACO participants over time and the ensuing implications for beneficiary assignment. Lastly, we investigated whether participants of AIM ACOs exiting the Shared Savings Program at the end of 2018 joined other SSP ACOs in 2019.

Key findings on growth and turnover in AIM ACOs were:

- Approximately 70 percent of physician practices and 50 percent of facility-based providers participating in AIM ACOs had the types of visits with patients that contribute to beneficiary assignment to the ACO. AIM grew over time in terms of the number of participants; in particular, the average number of practitioners per AIM ACO increased from 90 in 2016 to 120 in 2018, representing a 33.3 percent increase compared to an 8.6 percent increase among all other SSP ACOs during the same time.
- Despite some turnover in AIM ACO participants between 2016 and 2018, the characteristics of beneficiaries who would have been assigned had ACO participants remained the same were similar to beneficiaries who were assigned to AIM ACOs in 2018. This finding suggests that AIM ACO participant changes over time did not result in selection of certain types of beneficiaries, on average.

5.1. Data and Methods

We used the ACO Provider Research Identifiable Files (RIFs) to identify AIM ACO participants from 2016 to 2018 by their Tax Identification Numbers (TINs) for physician practices and CMS Certification Numbers (CCNs) for facility-based providers. We also identified participants and facility-based providers that determined the ACO's assigned beneficiaries–entities that met the Shared Savings Program eligibility criteria based on specialty and provider type and had at least one eligible primary care visit with Medicare FFS beneficiaries.[39] Below, we refer to these entities as "providers contributing to assignment."

We first determined the share of total AIM ACO participants that contributed to assignment and explored turnover in these providers. We next examined how assigned beneficiaries differed as a result of the participant turnover, by comparing the characteristics of assigned beneficiaries to AIM ACOs in 2018 to the characteristics of beneficiaries who would have been assigned had the 2016 (and, separately, 2017) ACO providers remained the same. To do so, we hypothetically assigned beneficiaries in 2018 to the 2016 ACO participants and, separately, to the 2017 ACO participants.

We then assessed the implications of beneficiary turnover over time by comparing beneficiaries assigned to hypothetical ACOs during the baseline to those actually assigned to the ACO during the performance year. That is, the evaluation baseline was constructed by assigning beneficiaries in 2013 to 2015 to the AIM ACOs' 2016 list of participants (and separately for the 2017 and 2018 ACO participant lists). The baseline period, defined as the three years prior to AIM (for AIM Test 1 ACOs) was held steady throughout the evaluation of the three AIM performance years. We examined the implications on assigned beneficiaries of this widening gap between the baseline period and performance years.

[39] https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Downloads/Shared-Savings-Losses-Assignment-Spec-V6.pdf

Lastly, for the 29 AIM ACOs that exited the Shared Savings Program at the end of 2018, we examined whether the ACOs' participants were affiliated with another SSP ACO in 2019. We looked at both the amounts of 2018 allowed charges for primary care visits (as a proxy for participants' sizes) and counts of ACO participants (defined by TINs) that moved to other SSP ACOs versus becoming completely unaffiliated with the Shared Savings Program in 2019.

Where possible, we examined data for the 45 AIM Test 1 and Test 2 ACOs participating in the Shared Savings Program through 2018. For some analyses, such as those involving hypothetical assignment, we only included the 41 AIM Test 1 ACOs for which the 2013 to 2015 baseline was defined (see **Chapter 3**). We indicate whether AIM Test 2 ACOs were included in the analyses within the footnotes of each exhibit.

5.2. Who are ACO Participants?

The regulatory definition of a Shared Savings Program ACO is simply a legal entity "identified by TIN [tax identification number] formed by one or more ACO participants." An ACO participant is defined as "an entity identified with a Medicare-enrolled billing TIN through which one or more ACO providers/suppliers bill Medicare, that alone or together, with one or more other ACO participants compose an ACO."[40] Participants of an ACO enter into contractual agreements intended to align the incentives and expectations across the range of practices and facility-based providers that may see a patient. In addition, numerous external relationships and informal networks might be considered affiliated with the ACO, affecting care provided to ACO beneficiaries.[41]

Not all ACO participants contribute to determining which beneficiaries are assigned to the ACO. As shown in **Exhibit 5-1**, of the ACOs' participating TINs, 70.1 percent included practitioners that were used in determining beneficiary assignment in 2018 and only about half (51.6 percent in 2018) of facility-based providers provided care that contributed to beneficiary assignment.[42] **Exhibit 5-1** also shows that the number of ACO participants has grown over time, as generally has the number contributing to assignment.

Exhibit 5-1. Not all AIM Participants Determine ACO Beneficiary Assignment

	2016	2017	2018
AIM ACO participants (# TINs)	761	824	873
Percent contributing to assignment	565 (74.2%)	615 (74.6%)	612 (70.1%)
AIM ACO facility-based participants (# CCNs)	1,130	1,326	1,338
Percent contributing to assignment	568 (50.3%)	680 (51.3%)	691 (51.6%)

Note: TIN = tax identification number; CCN = CMS certification number. Figures are totals across the 45 AIM ACOs in each year. The percent contributing to beneficiary assignment is the percent of total AIM ACO participants that had at least one qualifying visit with assignment-eligible beneficiaries.
Source: ACO Provider Research Identifiable Files for 2016-2018 combined with Medicare claims data.

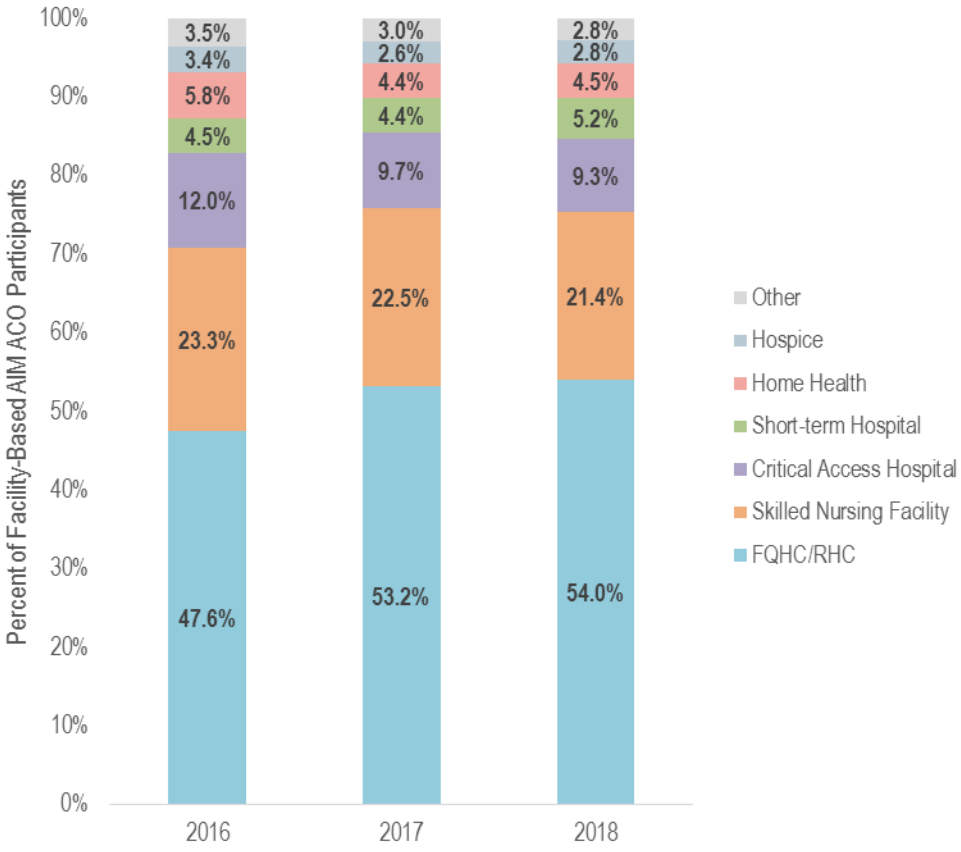
[40] 42 CFR § 425.20. According to CMS definitions, suppliers are physicians or other practitioners who provide services under Medicare, and providers are hospitals, CAHs, SNFs, home health agencies, hospices, and other facility-based institutions (42 CFR § 400.202).

[41] The AIM Second Annual Report, 2019 provides additional discussion on AIM ACOs' external partnerships (https://innovation.cms.gov/innovation-models/aco-investment-model).

[42] Medical care that contributes to assignment is primary care defined by a list of evaluation and management procedure codes listed here: https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Downloads/Shared-Savings-Losses-Assignment-Spec-V6.pdf

The types of facility-based providers participating in the AIM ACOs are shown in **Exhibit 5-2**. Across AIM ACOs, the bulk of the providers were FQHCs and RHCs (54.0 percent in 2018). The next most common participating providers were SNFs (21.4 percent), Critical Access Hospitals [CAHs] (9.3 percent), other short-term hospitals (5.2 percent), home health (2.8 percent), and hospice (2.8 percent) in 2018. Remaining provider types (categorized as "Other") included behavioral health providers, dialysis facilities, and other post-acute care providers. The share of FQHCs and RHCs of all facility-based providers rose from 47.6 percent in 2016 to 54.0 percent in 2018, while the share of most other types of facility-based providers shrank.

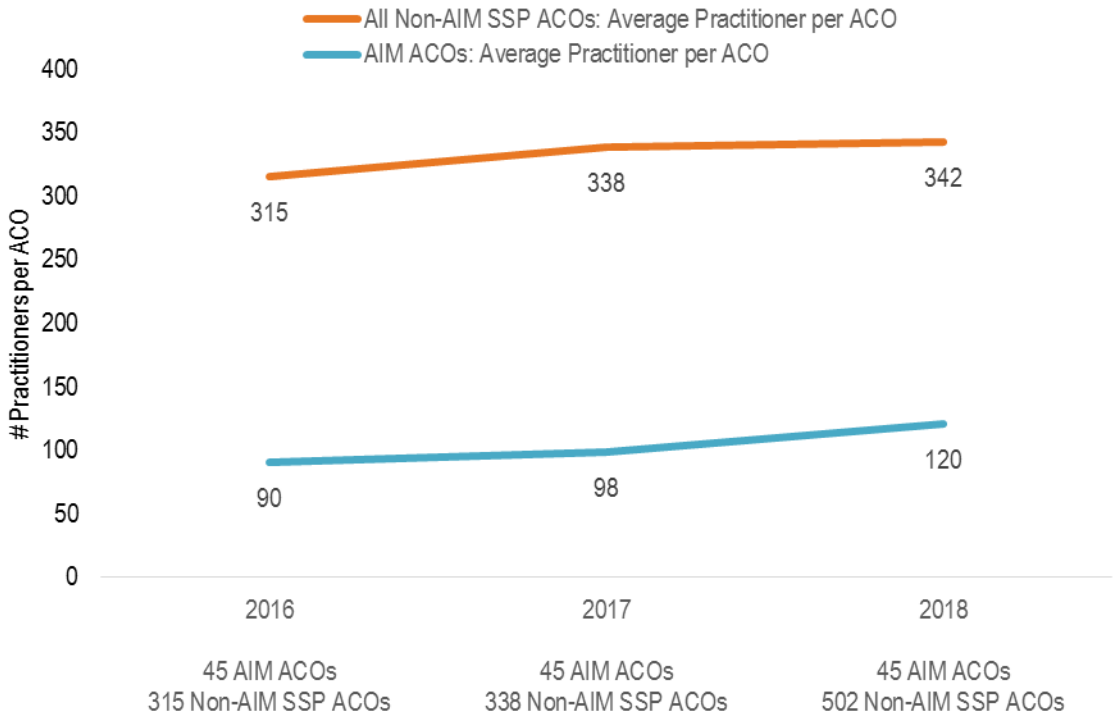
Exhibit 5-2. AIM ACO Growth in Participation by Facility-Based Providers Driven by FQHCs and RHCs



Note: FQHC = federally qualified health center; RHC = rural health clinic. Includes the percentage of ACO participants that are facility-based providers across the 45 AIM ACOs. "Other" includes behavioral health providers, dialysis facilities, and other post-acute care providers.
Source: ACO Provider Research Identifiable Files for 2016-2018.

ACO growth was not limited to facility-based providers. The growth over time in the number of ACO practices (defined by TINs) was more muted than for facility-based providers (see **Exhibit 5-1**), especially when counting only those practices involved with assignment. However, we found substantial increases in the total number of practitioners (defined by NPIs, or national provider identifiers) per AIM ACO, indicating practice sizes increased. The count of practitioners per ACO displayed in **Exhibit 5-3** included only those practitioners contributing to assignment averaged over the 45 AIM ACOs in each year. We found increases from 90 practitioners per ACO in 2016 to 120 practitioners per ACO in 2018, or an increase of 33.3 percent. In contrast, among all non-AIM SSP ACOs during the same time period, the increase was from 315 practitioners per ACO (2016) to 342 practitioners per ACO (2018), or an increase of 8.6 percent.

Exhibit 5-3. Greater Increases in Practitioners Per ACO for AIM ACOs than Non-AIM SSP ACOs



Note: Non-AIM SSP ACOs include all ACOs participating in the Shared Savings Program in the year excluding the 45 AIM ACOs. Practitioners are defined as unique national provider identifiers (NPIs) and tax identification number (TIN) combinations that contributed to assignment from having qualifying visits with assignment-eligible beneficiaries.
Source: ACO Provider Research Identifiable Files for 2016-2017 combined with Medicare claims data

Many AIM ACO representatives spoke to their growth during their interviews and indicated that increasing their participating practitioners would increase their geographic reach. Compared to non-AIM SSP ACOs, AIM ACOs tended to be more geographically dispersed. AIM ACOs spanned 37 states in 2018 (up from 36 in 2016). As reported in **Exhibit 2-4**, only 31.7 percent of AIM ACOs were composed of contiguous counties (i.e., were centralized) while 76.4 percent of similar non-AIM SSP ACOs were composed of contiguous counties in 2016. Indeed, some AIM ACO provider practices were spread across the state while other AIM ACO provider networks spanned multiple states.

The lack of centralization among many AIM ACOs became apparent during the AIM evaluation's primary data collection. Interviewees – even those in ACO leadership roles – did not possess knowledge of the overall size of the ACO's network, which care management interventions were being implemented across the ACO, or whether the ACO had a coordinated strategy for developing relationships with non-ACO providers such as HHAs or nursing homes. Some ACO interviewees prefaced their responses to our questions about ACO operations with phrases such as, "I don't want to speak for my peer-CEOs" [meaning, executives of the other hospitals participating in the same ACO], or "I can speak about our particular organization and community, but I don't know much about other participants in our ACO."

In contrast, the leadership of ACOs that were more centralized and those composed primarily of independent physician practices tended to discuss their ACO provider network and care management programs on behalf of the whole ACO. By extension, several of these ACOs described organization-level efforts to coordinate the ACO's relationships with PAC providers, to recruit new providers to join the ACO, or to reassess whether certain providers should be excluded from the provider network in the

coming year (e.g., providers who were not performing satisfactorily on quality measures, providers disengaged from ACO activities).

However, as shown in **Chapter 4** (**Exhibit 4-3**), contiguity of the AIM ACO did not appear to be related to estimated reductions of AIM on total Medicare spending – both AIM ACOs that were and were not centralized reduced total Medicare spending. This finding was supported by information gathered from interviewing an AIM ACO management company – interviewees believed that the geographic distribution of ACO participants was immaterial to success.

5.3. ACO Participant Turnover and Implications for Beneficiary Assignment

We found that most ACO participants (both physician practices and facility-based providers) consistently remained in the ACO between 2016 and 2018 (**Exhibit 5-4**). On average, 76.7 percent of AIM ACO physician practices in 2016 remained with the same ACO in all three years. In 2017, 17.2 percent of AIM ACO practices were new, and, in 2018, 14.2 percent of ACO practices were new. The figures were similar for facility-based providers. Note that there was wide variation in these numbers across AIM ACOs, with some ACOs retaining all participants across the three years and some turning over almost all participants.

Exhibit 5-4. Most ACO Participants Remained in the ACO for All Three Years

	AIM ACO Practices			AIM ACO Facilities (CAH, FQHC, RHC)		
	2016-2018	New in 2017	New in 2018	2016-2018	New in 2017	New in 2018
Mean	76.7%	17.2%	14.2%	77.2%	18.9%	17.6%
Minimum	39.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Median	77.8%	10.0%	6.3%	84.2%	10.3%	7.7%
Maximum	100.0%	66.7%	91.7%	100.0%	100.0%	100.0%

Note: Figures were based on counts of practices (tax identification number [TINs]) and facilities (CMS certification number [CCNs]) that contributed to beneficiary assignment. Percentages represent averages across the 45 AIM ACOs for ACO practices and across the 37 AIM ACOs that had any participating facility-based providers. The 2016-2018 figures represented the percent of providers in 2016; the New in 2017 figures represent the percent of AIM ACO providers in 2017; and the New in 2018 present the percent of AIM ACO providers in 2018. New in 2017 figures may include providers that were in both 2017 and 2018 as well as those only in 2017.
Source: ACO Provider Research Identifiable Files for 2016–2018 combined with Medicare claims data.

Although **Exhibit 5-4** demonstrates overall stability in ACO participants across the three years, it may not be the case that individual practitioners affiliated with the ACO participants also had the same stability. Greater turnover in practitioners (compared to practices) is expected and not necessarily an issue for the evaluation unless the beneficiaries assigned to the ACOs also differed across the years. We previously showed in **Exhibit 4-9** that the majority of AIM ACO beneficiaries were assigned over multiple years.

In **Exhibit 5-5**, we compared beneficiaries assigned to AIM Test 1 ACOs in 2018 to those who would have been assigned in the same year had the ACO participants from 2016 and 2017 remained the same. We found that beneficiaries assigned using the 2016, 2017, and 2018 ACO participant lists were similar across a variety of 2018 characteristics, on average, with only a few differences. Actual assigned beneficiaries (using the 2018 participant list) were less likely to be black (5.9 percent versus 6.8 percent using the 2017 list and 6.4 percent using the 2016 ACO participant list), on average. They also had lower unadjusted Medicare spending on average – $987.07 PBPM versus $1,009.42 PBPM using the 2017 list and $1,013.77 PBPM using the 2016 ACO participant list. All other characteristics were very similar across the three participant lists. Differences might indicate that changes in ACO participants led to the selection of lower cost beneficiaries over the years, but the similarity in other health characteristics indicated little evidence of selection. Moreover, the PBPM Medicare spending and utilization variables were based on the performance year (2018) and thus the lower average spending may be due to AIM ACOs' reduction spending and utilization manifested for beneficiaries actually assigned to the ACO in

2018. It was also possible that AIM ACOs' geographic footprint changed as participants changed, in which case average, non-standardized payments could vary even if the underlying composition of assigned beneficiaries did not change.

Exhibit 5-5. AIM ACO Beneficiaries Assigned to 2016, 2017, or 2018 ACO Participants Were Similar on Average

Characteristics in 2018	Assigned with 2018 ACO Participants	Assigned with 2017 ACO Participants	Assigned with 2016 ACO Participants
Number of assigned beneficiaries	447,005	429,724	362,865
Female	56.2%	56.4%	56.3%
Average age	71.3	71.2	71.4
White	88.0%	87.2%	87.6%
Black	5.9%	6.8%	6.4%
Hispanic	2.9%	2.9%	2.9%
Other race	3.2%	3.1%	3.2%
Disabled	25.4%	25.8%	25.3%
End Stage Renal Disease (ESRD) Medicare entitlement	0.9%	1.0%	1.0%
Medicare/Medicaid dual eligibility	21.9%	22.2%	22.0%
Average HCC risk score (lagged)	0.97	0.97	0.98
Number of chronic conditions (lagged)	2.43	2.42	2.43
Mean PBPM Medicare spending	$987.07	$1,009.42	$1,013.77
Any acute hospitalization	19.1%	19.5%	19.5%
Any ED visit not resulting in hospital admission	26.1%	26.6%	27.3%
# SNF days	1.8	1.8	1.9
Long-term institutional facility	2.2%	2.0%	2.1%
Died	3.7%	3.6%	3.7%

Note: Figures for beneficiaries assigned to the 41 AIM Test 1 ACOs in 2018 using the 2016, 2017, and 2018 ACO participant lists (see Appendix 1B for further discussion of the evaluation's team application of beneficiary assignment).
Source: ACO Provider Research Identifiable Files for 2016–2018 combined with Medicare claims data.

Lastly, we examined differences in beneficiaries assigned during the evaluation's baseline period (2013 to 2015) compared to those assigned during the performance years (2016 to 2018) for AIM Test 1 ACOs. We did this to determine whether there was an appreciable change in beneficiary composition of AIM ACOs between their baseline and performance years. The baseline period used in our evaluation approach was constructed by hypothetically assigning beneficiaries to ACO participants during a period before the AIM Test 1 ACOs existed (see **Chapter 3** for more detail). As shown in **Exhibit 5-6**, for PY1 (2016), most assigned beneficiaries (79.5 percent) were also hypothetically assigned during at least one year of the baseline period. Not surprisingly, this percentage decreased as the gap between the performance and baseline years widened. In PY2 (2017), 68.8 percent of beneficiaries were also assigned during at least one year of the baseline period. In PY3 (2018), this figure was 57.3 percent.

Exhibit 5-6: Most AIM ACO Beneficiaries Assigned in both the Performance and Baseline Period

	PY1 (2016)	PY2 (2017)	PY3 (2018)
Number of AIM Test 1 ACO assigned beneficiaries	387,017	423,499	447,005
Beneficiaries assigned in performance year and baseline period	79.5%	68.8%	57.3%
Beneficiaries assigned only in performance year	20.5%	31.2%	42.7%
Newly eligible for assignment	12.8%	14.7%	16.9%
Received primary care from ACO prior to the performance year	4.2%	12.5%	21.9%
Did not receive care from the ACO prior to the performance year, but not newly eligible	3.5%	4.0%	3.9%

Notes: For the 41 AIM Test 1 ACOs, Performance Years (PY) 1-3 were 2016-2018 and the baseline period was 2013-2015. Beneficiaries were hypothetically assigned to ACO participants during the baseline period using the ACO participants in each performance year (see Chapter 3). Eligibility for assignment is described in the Shared Savings Program Methodology (https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Downloads/Shared-Savings-Losses-Assignment-Spec-V6.pdf).
Source: ACO Provider Research Identifiable Files for 2016–2018 combined with Medicare claims data.

Exhibit 5-6 also categorized beneficiaries only assigned during the performance year:[43]

- *Newly eligible for assignment*: These beneficiaries were newly eligible for beneficiary assignment because they aged into Medicare (or otherwise became eligible) or newly moved to the ACO's market. This group ranged from 12.8 percent of beneficiaries only assigned in the performance year in PY1 to 16.9 percent in PY3.
- *Received primary care from the ACO prior to the performance year*: These beneficiaries had received primary care with the ACO participants prior to the performance year but not enough for ACO assignment. This category grew substantially over time as the gap between the performance year and baseline widened (4.2 percent in PY1 to 21.9 percent in PY3).
- *No primary care from the ACO prior to the performance year but not newly eligible for assignment*: These beneficiaries were previously eligible for assignment but never received any primary care from the ACO's participants. They comprised the smallest category and were consistently the smallest share over time (3.5 percent in PY1; 4.0 percent in PY2; and 3.9 percent in PY3).

Most beneficiaries who were only assigned during the performance year fell into the first two categories – newly eligible for assignment or had previously received some, but not a plurality, of primary care from the ACO. Since PY3 was the furthest removed from the baseline, it was not surprising that more beneficiaries assigned in that year were only assigned during the performance year (and not the baseline period) compared to the other performance years.

We compared beneficiaries' characteristics by each assignment category for PY3 (**Exhibit 5-7**). We found that beneficiaries newly eligible for assignment (16.9 percent of all assigned beneficiaries in PY3) were the youngest (average age of 66.3), consistent with being newly eligible for Medicare. The lowest cost beneficiaries were those who received some, but not a plurality, of primary care from the ACO in the past ($926.64 PBPM) and comprised 21.9 percent of all assigned beneficiaries. Beneficiaries in the last category, composing 3.9 percent of the assigned beneficiaries, were the most costly at $1,216.02 PBPM. These findings demonstrate the heterogeneity in ACOs' assigned beneficiaries. In particular, as the gap between the performance year and baseline widened, smaller shares of assigned beneficiaries were also assigned during the baseline.

[43] Note that one AIM Test 1 ACO participated in a two-sided risk track in 2018 (PY3). For that ACO, assignment is based on a primary care visit in the year prior to the performance year, so all assigned beneficiaries would be considered as having received primary care from the ACO prior to the performance year.

Exhibit 5-7: AIM Test 1 ACO Beneficiaries Differed Depending on Prior Interaction with the ACO, PY3 (2018)

Characteristic in 2018	Assigned in PY3 & Baseline	Beneficiaries Assigned in PY3 and Not in the Baseline		
		Newly Eligible for Assignment in PY3	Received Care from ACO Prior to PY3	Did Not Receive Care Prior to PY3, But Not Newly Eligible
Number of assigned beneficiaries (%)	256,009 (57.3%)	75,749 (16.9%)	97,774 (21.9%)	17,473 (3.9%)
Female	57.4%	53.3%	55.6%	55.7%
Average age	73.5	66.3	69.2	72.3
White	88.9%	86.3%	86.9%	87.8%
Black	5.9%	5.4%	6.7%	4.8%
Hispanic	2.5%	3.9%	2.9%	3.9%
Other race	2.7%	4.5%	3.5%	3.5%
Disabled	24.8%	26.1%	26.2%	28.2%
End Stage Renal Disease (ESRD) Medicare entitlement	0.7%	1.1%	0.9%	0.9%
Medicaid dual eligibility	20.9%	24.0%	22.7%	23.8%
Average HCC risk score	1.00	0.83	0.88	0.99
Number of chronic conditions	2.87	1.16	2.19	2.74
Average PBPM Medicare payment	$1,006.62	$929.52	$926.64	$1,216.02
Any inpatient visits	19.8%	17.3%	17.9%	23.5%
Any ED visit not resulting in hospital admission	26.7%	23.7%	25.7%	28.7%
# SNF days	1.9	1.7	1.5	3.1
Long-term institutional facility	2.3%	1.7%	2.4%	3.1%
Died	4.0%	2.9%	3.3%	4.9%

Notes: For the 41 AIM Test 1 ACOs, Performance Year (PY) 3 was 2018 and the baseline period was 2013-2015. Beneficiaries were hypothetically assigned to ACO participants during the baseline period using the ACO participants in each performance year (see Chapter 3).
Source: ACO Provider Research Identifiable Files for 2016–2018 combined with Medicare claims data.

Despite the turnover in ACO participants over time, we found that the composition of AIM ACOs remained relatively stable over the three AIM performance years among both ACO participants and assigned beneficiary characteristics.

6. Lessons from Comparing AIM to the Advance Payment ACO Model

In this chapter we compare the AIM and AP ACO Model designs, evaluation findings, Shared Savings Program financial results, and the ACOs' continued participation in the Shared Savings Program. The models had similar goals to encourage participation of smaller, less-resourced practices in the Shared Savings Program; this examination summarizes information and lessons learned from two models of pre-paid shared savings payments to ACOs in the Shared Savings Program.

Key findings on contrasting AIM and AP ACO models include:

- AIM reduced total Medicare spending while the AP model increased total Medicare spending in the performance years evaluated. Both evaluation approaches involved comparing Medicare spending for assigned beneficiaries to FFS Medicare beneficiaries in an ACO's market who were not assigned to any Medicare ACO.
- In both models, about half of the total advance payment funding was recouped by the end of the model.
- During both models, few ACOs exited prematurely (before 2016 for AP and 2019 for AIM); a larger share (48.6 percent) of AP ACOs renewed in the Shared Savings Program in 2016 after the AP model concluded than did AIM ACOs (34.0 percent).
- In 2020, 11 ACOs that had participated in the AP model were participating in Pathways to Success. Ten AIM ACOs renewed in Pathways to Success; three additional AIM ACOs were still participating under participation agreement periods that are not due for renewal until the end of 2020.

6.1. AIM and AP ACO Model Design

AIM refined and built on experiences with the AP model, which was the first model of pre-paid earned shared savings for eligible ACOs. Similar to AIM, the goal of the AP model was to help smaller ACOs with less access to capital participate in the Shared Savings Program. The initial cohort of participants began the first performance year in April 2012 and the model ended in December 2015.[44]

AIM and AP models were similar in the availability and structure of financial incentives. The two models had slightly different eligibility criteria regarding the number of assigned beneficiaries and hospital participation requirements, as shown in **Exhibit 6-1**.

Exhibit 6-1. Comparison of AIM and AP Model Designs

Category	AIM	AP
Performance Years	2015–2018	2013–2015
Eligibility Criteria	5,000-9,999 beneficiaries (for AIM Test 2; no cap for AIM Test 1 if located in a rural area) Accepted into the Shared Savings Program	At least 5,000 beneficiaries Accepted into the Shared Savings Program
Participation	ACOs in which the only inpatient facilities could be either critical access hospitals (CAHs) or inpatient prospective payment system (IPPS) with ≤100 beds	ACOs with no inpatient facilities and <$50 million in total annual revenue ACOs in which the only inpatient facilities could be either CAHs or low-volume rural hospitals

[44] The first cohort of five AP ACOs began participating in April 2012; 15 AP ACOs started in July 2012; and 16 AP ACOs started in January 2013. CMS calculated and reported financial and quality performance results as PY1 (2012 and 2013), PY2 (CY 2014), and PY3 (CY 2015). The evaluation of the AP model covered the period 2012 to 2014. Evaluation results were reported for partial year 2012 (for ACOs that started in April or July 2012) and calendar years 2013 and 2014 and are available at: https://innovation.cms.gov/Files/reports/advpayaco-fnevalrpt.pdf.

Category	AIM	AP
		and that have <$80M total annual revenue
Funding	Up-front fixed payment: $250,000 in the first month (Test 1) Up-front variable payment: $36 per beneficiary per month (cap of 10,000 beneficiaries) Monthly variable payment: $8 per beneficiary per month (Test 1) OR $6 per beneficiary per month (Test 2) (cap of 10,000 beneficiaries)	Up-front fixed payment: $250,000 in the first month Up-front variable payment: $36 per beneficiary per month (cap of 10,000 beneficiaries) Monthly variable payment: $8 per beneficiary per month (cap of 10,000 beneficiaries)
Other	2012–2014 SSP starters should have reported quality measures ACO is not owned or operated in whole or in part by a health plan AIM Test 2 ACOs required to repay payments if not recouped from shared savings	N/A

Sources: The AIM and AP model request for applications: "AIM-RFA.pdf" and "Advance-Payment-Model_ACO-solicitation-doc.pdf".

In a group interview in the summer of 2018, CMMI AIM model leads stated that operational learnings from the AP experience helped to enhance the design of AIM, making it easier for AIM ACOs to adhere to model requirements. From the beginning of AIM, the model leads provided the AIM ACO participants with guidance documents that outlined data reporting processes and provided more hands-on assistance than was provided to AP ACOs.

6.2. AIM and AP Model Participants

AIM had more participating ACOs, more ACO providers, and more assigned beneficiaries than the AP model. Management companies played a much more prominent role in the start-up and operation of AIM ACOs than AP ACOs, and ACOs under AIM were much more likely to partner with a hospital. Key features of AP and AIM ACOs are shown in **Exhibit 6.2**.

Exhibit 6-2. AIM and AP Model Participants' Size and Composition

Category	AIM	AP
Total number of participating ACOs	47[a]	36[a]
Total number of assigned beneficiaries	2015: 13,450[b] 2016: 421,561 2017: 469,728 2018: 492,114	2013: 309,376 2014: 287,706 2015: 270,427
Size range (assigned beneficiaries per ACO; median)	2015: 5,411 – 8,039; 6,725[b] 2016: 4,486 – 20,716; 8,535 2017: 4,579 – 22,229; 10,011 2018: 4,324 – 25,122; 10,045	2013: 5,286 – 13,914; 7,667 2014: 4,402 – 13,419; 7,645 2015: 1,529 – 15,132; 6,986
Size range (number of providers per ACO; median)[c]	2015: 30 – 51; 41[b] 2016: 27 – 610; 190 2017: 40 – 5,332; 620 2018: 28 – 5,224; 765	2013: 16 – 135; 56 2014: 17 – 118; 53 2015: 18 – 147; 46

Category	AIM	AP
Number partnered with management companies	37	16
Number with hospitals[d]	2015: 0[b] 2016: 25 2017: 24 2018: 26	2013: 0 2014: 0 2015: 0

[a] The first cohort of four AIM ACOs began participating in April 2015, and two of them discontinued at the end of the year. A second cohort of 43 AIM ACOs began participating in January 2016. The first cohort of five AP ACOs began participating in April 2012; 15 AP ACOs started in July 2012; and 16 AP ACOs started in January 2013.
[b] 2015 figures exclude assigned beneficiaries for the two AIM ACOs that began participating in April 2015 and discontinued at the end of the same year.
[c] Refers to primary care practitioners, specialists, and non-physician practitioners that reassigned billing rights to an ACO participant.
[d] Refers to Method II critical access hospitals (CAHs) and electing teaching amendment (ETA) hospitals. In 2018, 23 of the 26 AIM ACOs' networks also included one or more short-term acute care hospitals (the latter count was not available in the Shared Savings Program Public Use Files in prior years). Also, in 2018, one AIM ACO had no CAHs or ETA hospitals and one short-term acute care hospital.
Sources: AP Model and AIM Model data are from Shared Savings Program Public Use Files; AP Model data is also drawn from the *Evaluation of CMMI Accountable Care Organization Initiatives: Advance Payment ACO Final Report* (November 2016), available at https://innovation.cms.gov/Files/reports/advpayaco-fnevalrpt.pdf

6.2.1 AIM and AP ACOs expressed similar motivations to participate in models

In interviews with key personnel from AIM ACOs, the most commonly cited goal of AIM participants was to gain experience in delivering value-based care. Several interviewees explained that participating in AIM allowed them to prepare for the changing reimbursement systems and new delivery models that encouraged value-based care and population health management, and to learn better techniques for delivering care management services or standardizing care across practices. To a lesser extent, AIM interviewees said that they were motivated to participate in AIM and the Shared Savings Program because the funding would help practices remain independent rather than being acquired by large hospital systems in their markets.

Similarly, in interviews with AP ACO leadership, two primary rationales for participating in the AP model were commonly cited. First, several AP ACOs were motivated to achieve the three-part aim of lower costs, higher quality, and better health for patients and discussed ACOs as a pathway to implementing changes in their care delivery practices. ACO leadership described how implementing such changes offered a way to gain experience in and ultimately transition to more value-based contracting, which many of them expected to become more prevalent in the future. The second reason AP ACO leadership cited as a rationale for participating in the AP model was that hospitals in their markets were buying physician practices. As a result, they viewed the ACO as a way to maintain independence in an increasingly consolidated environment. Notably, none of the AP ACOs' networks included hospitals.

6.2.2 CMMI AIM model leads' perspective on model participants

Based on their experience implementing the AIM and AP models, CMMI AIM model leads felt strongly that the size of future cohorts should be reduced to accept only the most qualified organizations. They said that many organizations that were selected to participate lacked the experience or infrastructure to address AIM requirements. One model lead indicated that some applicants should never have been accepted. They felt that being more selective with participants would be advantageous to the model.

> *…With AIM, we took everyone who could possibly do it, and some people just weren't really ready.*

Related to lack of readiness, CMMI AIM model leads also felt that limited information on how to implement AIM may have led to management company involvement and the influx of those firms in

AIM. While the model leads indicated that management companies were an important resource to AIM ACOs, especially in communicating CMS requirements, many AIM ACOs lacked experience in ACO functions. This may have led to their dependence on management firms.

> *…We didn't provide any feedback on how to implement these things, which is probably why there were so many management companies involved. …So I guess we kind of created that industry of management companies in a way.*

6.3. AIM and AP Evaluation Results: Impacts on Total Medicare Spending

Evaluations of the AIM and AP models used similar approaches to measure model impacts on Medicare spending and quality of care. Both evaluations employed a difference-in-differences (DID) framework to evaluate key outcomes. The DID framework compared the change in outcomes for AIM or AP ACO-assigned beneficiaries relative to FFS Medicare beneficiaries in the ACO's market who were not assigned to any Medicare ACO.[45] Although the evaluations have some differences to their approaches to estimating outcomes, the results are relatively comparable.

Across all AIM Test 1 ACOs, we estimated that the model reduced per beneficiary per month (PBPM) total Medicare spending by -$28.21 in PY1, -$36.94 in PY2, and -38.73 in PY3 compared to beneficiaries in the AIM ACOs' non-ACO FFS market comparison group.[46] These estimates translated to an aggregate Medicare spending reduction of -$131.0M in 2016, -$187.7M in 2017, and -$207.7 in 2018. In contrast, the AP model evaluation found the model did not have a statistically significant effect on spending in 2012 or 2013. In 2014, AP ACOs had increased total Medicare spending by $20.80 PBPM, translating into an estimated $70.80M aggregate spending increase in 2014.

Examining spending results by service, we estimated decreases in Medicare spending and use of inpatient hospitalizations, skilled nursing facility (SNF) care, and other services for AIM. We also found that overall physician spending remained unchanged, though components of physician services increased. AP ACOs saw significant decreases in acute inpatient hospital services in both 2012 and 2013, but by 2014, there were increases in spending on acute inpatient hospitalizations. For physician services, AP ACOs significantly increased spending in all three years. AP ACOs increased spending on SNF services in 2012 and 2013 and decreased SNF spending in 2014. In all three years, AP ACOs collectively showed reductions in home health spending.

[45] For details on the DID methodology used in the AP ACO evaluation, please see Advance Payment ACO Final Report (November 2016), available at https://innovation.cms.gov/Files/reports/advpayaco-fnevalrpt.pdf.

[46] Since AIM Test 2 ACOs began as existing SSP ACOs, the evaluation compared them only to other similar SSP ACOs, rather than to non-ACO FFS beneficiaries in AIM ACO markets.

Exhibit 6-3. Comparison of AIM and AP Evaluation Spending Results

	AIM Test 1			AP ACO Model		
	2016	2017	2018	2012	2013	2014
Total Medicare payments (in millions)	–$131.0***	–$187.7***	–$207.7***	−$7.6	−$6.6	$70.8*
PBPM Payments						
Total	–$28.21***	–$36.94***	–38.73***	−$7.50	−$2.00	$20.80
Acute inpatient	–$ 7.98***	$11.92**	–13.63***	–$6.90*	–$5.80*	$7.30*
Physician services	$1.50	–$0.47	–1.85	$3.80*	$3.70*	$9.10*
SNF	–$6.24***	–$6.19***	–5.74**	$5.00*	$5.80*	–$2.80*
Home health	–$1.86***	–$2.07***	–3.53***	–$4.20*	–$1.90*	–$1.70*
Outpatient and ambulatory care surgical centers	–$9.18***	–$8.88***	–0.871***	–$2.30	–$3.30*	$9.90*

Note: * Point estimates statistically significant at 5 percent level. *** Point estimates statistically significant at the 1 percent level. The first cohort of five AP ACOs began participating in April 2012; 15 AP ACOs started in July 2012; and 16 AP ACOs started in January 2013. Evaluation results were reported for partial year 2012 (for ACOs that started in April or July 2012) and calendar years 2013 and 2014. AIM Test 1 impact estimates include 41 ACO starting AIM in 2016.
Source: AP evaluation reports for AP results; AIM evaluation team findings using Medicare claims, enrollment, and ACO program data.

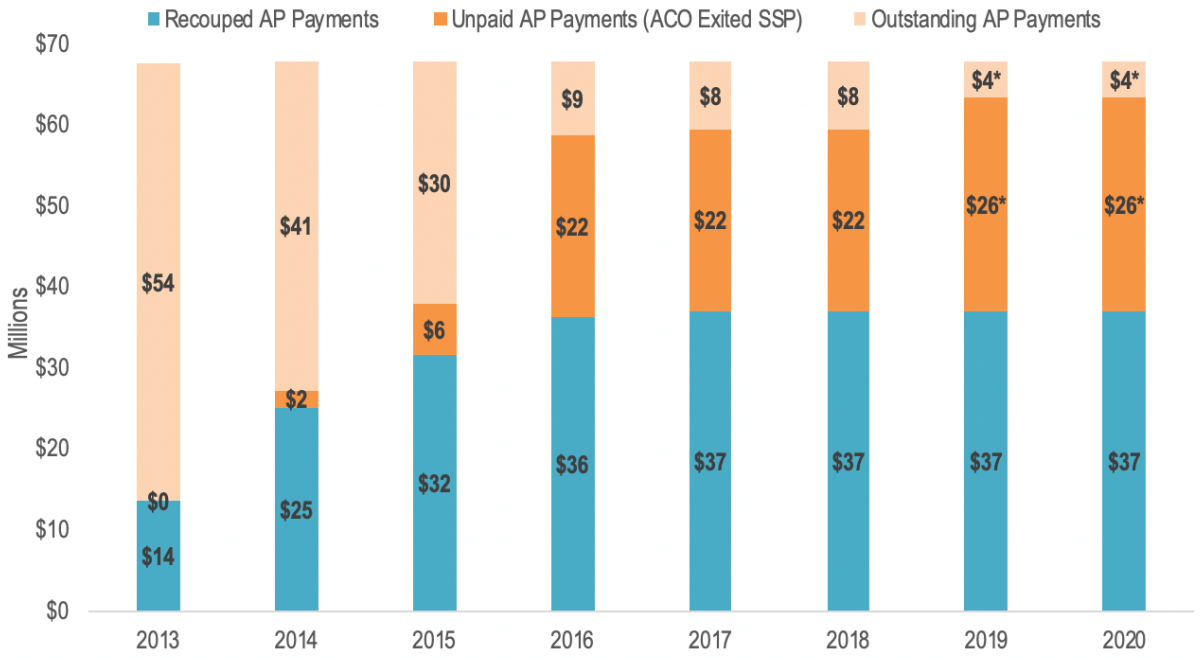
Both the final AP evaluation report and the most recent AIM evaluation reports explored the relationship between estimated AIM impacts on total Medicare spending and select ACO, beneficiary, and market characteristics. While the evaluations did not examine the same set of characteristics, neither found particularly strong evidence of specific characteristics driving individual ACO performance.

6.4. AIM and AP Financial Results and Continued Participation

As of the 2018 shared savings reconciliation, 54.2 percent—$52.1M of the $96.2M—of AIM funds had been recouped.[47] Twenty AIM ACOs had re-paid their entire AIM payment amount, eight had repaid some of the funds, and 19 AIM ACOs had not repaid any funds. Over a similar time period by the end of the AP model in 2015, 47.0 percent of $67.8M AP funds had been recouped from 17 ACOs that repaid the full pre-payment amount. In subsequent years since the end of the AP model, two ACOs have repaid an additional $5.5M through earned shared savings.

[47] This figure assumes that all AIM Test 2 ACOs repaid AIM payments even if they did not earn enough financial savings, per AIM Test 2 requirements.

Exhibit 6-4.Less Than Half of AP Payments Were Recouped

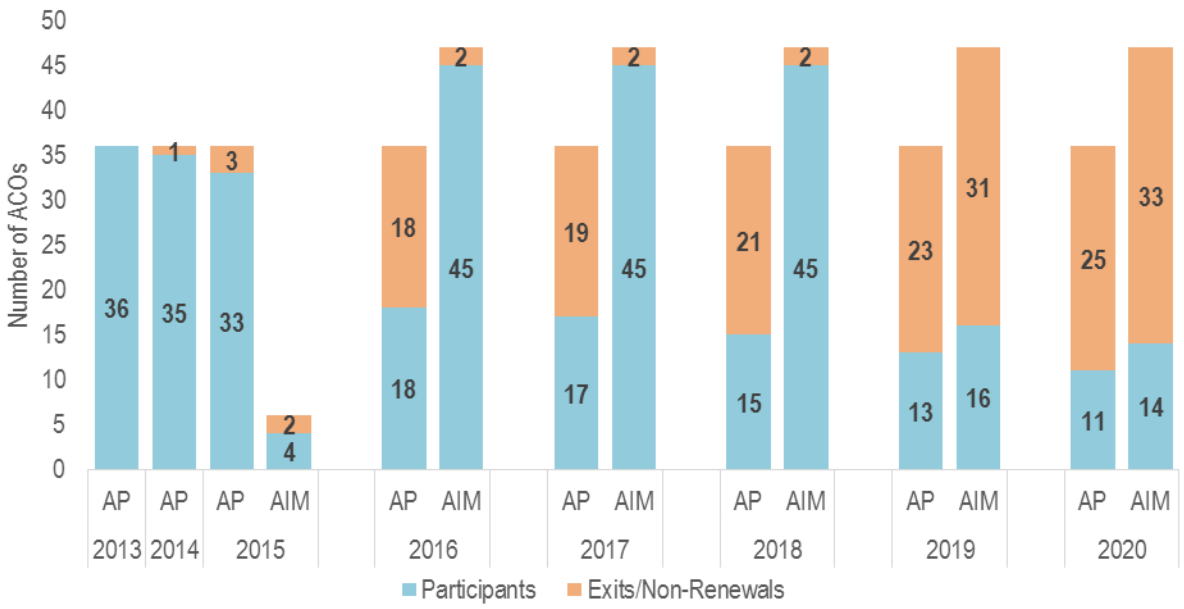


Note:
*2019 and 2020 financial reconciliations are not yet available or complete; some or all of these outstanding payments may have been recouped during these two years.
Source: Shared Savings Program Public Use Files, 2013-2020.

Few AP and AIM ACOs exited prematurely (before 2016 for AP and 2019 for most AIM ACOs), as shown in Exhibit 6-2.[48] Half (48.6 percent) of AP ACOs continued in the Shared Savings Program in 2016 after the AP model ended, compared to about one-third (34.0 percent) of AIM ACOs in 2019. **Appendix 6A** shows the status of AP ACOs through 2020.

[48] In both models, ACOs incurred the financial penalty of having to repay their pre-payments for early termination of their participation agreements.

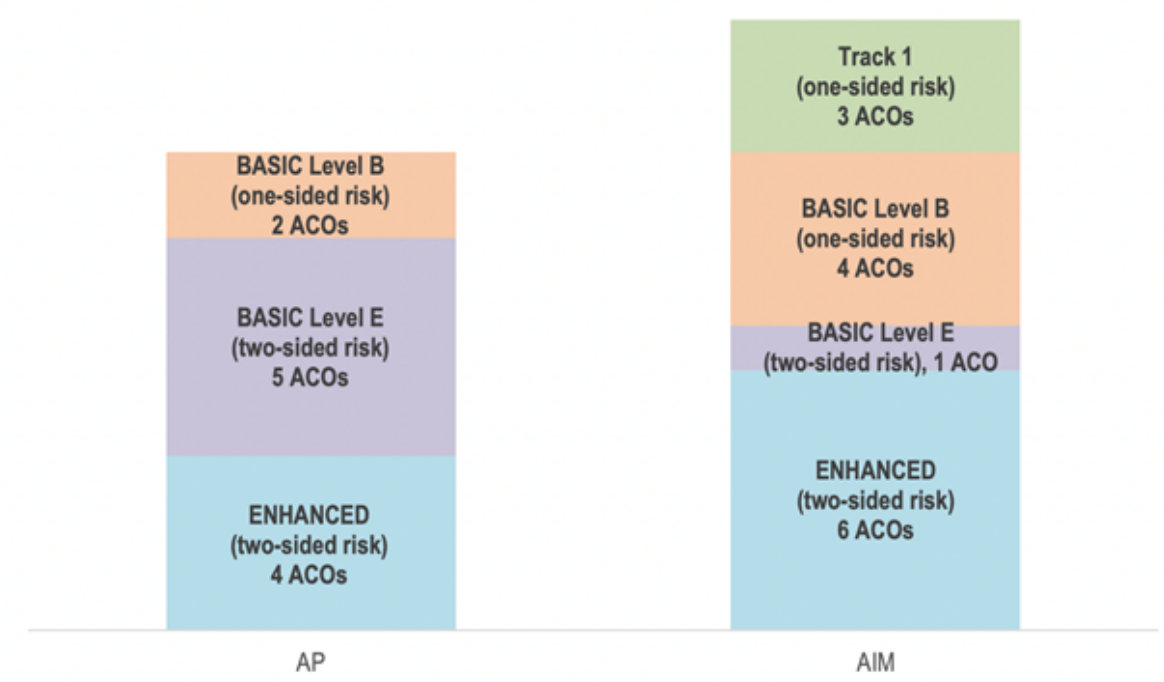
Exhibit 6-5.Some AP and AIM ACOs Continued in the Shared Savings Program Through 2020, Cumulative Counts from 2013–2020



Note: AIM ACOs began AIM in 2015 or 2016. The AP model completed by 2016 and AIM completed by 2018.
Source: Shared Savings Program Public Use Files, 2013-2020.

In 2020, 30.6 percent of the ACOs that participated in the AP model were still participating in the Shared Savings Program. ACOs that participated in AIM had a nearly identical rate of attrition from the Shared Savings Program by 2019 as AP ACOs. In 2020, 14 AIM ACOs (29.8 percent) remained in the program. Of the remaining 11 former AP ACOs participating in 2020, all had begun new agreement periods beginning on July 1, 2019 in Pathways to Success. Four elected the ENHANCED track, five BASIC level E, and two BASIC level B, as shown in **Exhibit 6-6**. Among the AIM ACOs that renewed in Pathways to Success, six opted for ENHANCED, one for BASIC level E, and four for BASIC level B. The remaining three AIM ACOs that began the Shared Savings Program in 2015 are still participating under agreement periods that were not due for renewal in 2020, so they have not yet decided whether to continue participating under Pathways to Success.

Exhibit 6-6. Former AP and AIM ACOs' Risk Tracks in 2020



Source: Shared Savings Program Public Use File, 2020.

Similar to AIM ACOs, AP ACOs preferred one-sided financial risk even after pre-payments ended. With just two exceptions, the AP ACOs that renewed in the Shared Savings Program did not choose to take on financial risk for losses, regardless of their success as AP ACOs.[49]

6.5. AIM and AP ACOs Remaining in the Program

In 2019, a little more than a third of the ACOs that participated in either the AIM or AP model remained in the Shared Savings Program. Select characteristics of the AIM and AP ACOs that remained as of 2019 are shown in **Exhibit 6-7**.

[49] RGV ACO Health Providers was the only AP ACO to assume financial risk under Track 2 during its first participation agreement period. It and Rio Grande Valley Health Alliance transitioned to Track 3 upon renewal of their participation agreements. Under the May 2015 final rule, CMS introduced Track 3 to the Shared Savings Program as a new risk track option.

Exhibit 6-7. Characteristics of AIM and AP ACOs that Remained in the Shared Savings Program

Characteristic	AIM	AP
Remained in SSP after model ended[a]	16 of 47 (34.0%)	13 of 36 (36.1%)
Management company presence[b]	11 of 16 (68.8%)	4 of 13 (30.8%)
Size range (assigned beneficiaries per ACO; median)[c]	2015: 5,411[d] 2016: 5,263 – 20,716; 8,463 2017: 4,746 – 18,746; 10,048 2018: 5,416 – 25, 122; 10,036	2013: 5,568 – 13,914; 8,495 2014: 4,719 – 12,703; 8,020 2015: 5,482 – 11,591; 9,959 2016: 5,193 – 14,439; 8,962 2017: 4,873 – 14,157; 9,644 2018: 5,032 – 15,894; 9,122
Number with hospitals[c, e]	2015: 0 2016: 3 2017: 3 2018: 4	2013: 0 2014: 0 2015: 0 2016: 0 2017: 0 2018: 0
Financial results (# earned shared savings; median amount)[c]	2015: 1; $3.2M 2016: 5; $2.6M 2017: 5; $3.2M 2018: 7; $2.4M	2013: 5; $2.9M 2014: 10; $3.4M 2015: 11; $3.1M 2016: 9; $2.3M 2017: 11; $3.2M 2018: 12; $2.5M

Note:
[a] Based on status at the end of 2018 for AIM and end of 2016 for AP.
[b[2018 AIM evaluation data; 2014-2016 AP evaluation data.
[c] 2016 – 2018 are years after the AP model ended.
[d] Reflects data for one AIM ACO that began AIM in 2015 and remained in the Shared Savings Program/Pathways to Success after 2018.
[e] Refers to Method II Critical Access Hospitals (CAHs) and electing teaching amendment (ETA) hospitals.
Sources: Shared Savings Program Public Use Files; AP model data drawn from the L&M evaluation team materials.

Among ACOs that remained in the program, the median number of assigned beneficiaries stayed relatively consistent year over year; AIM ACOs had between 8,400 and 10,000 assigned beneficiaries annually, while the AP ACOs had between 8,020 and 10,000 assigned beneficiaries. Likewise, AIM and AP ACOs' post-model financial performance was generally positive:

- For AP ACOs that renewed their participation in the Shared Savings Program, the proportion of ACOs that earned shared savings increased steadily over time. By 2015, 85 percent (11 ACOs) of the APs earned shared savings, receiving a median amount of $3.1M per organization. In 2018, 12 of the 13 former AP ACOs generated a median of $5.4M in total savings, of which the AP ACOs received $2.5M (median) in shared savings. Relatedly, between 2015 and 2017, only one AP ACO per year was subject to CMS's recoupment; by 2018, none of the remaining AP ACOs had payments recouped from their savings.[50]
- Among AIM ACOs that remained in the Shared Savings Program, approximately one-third earned shared savings in 2016 and in 2017. By 2018, the number of ACOs that earned shared savings had grown to seven ACOs (44 percent), only two of which were still required to repay AIM payments.

Given that AIM and AP ACOs faced similar payment incentives in terms of the recoupment of funds through earned shared savings, the differences in the ACOs' decisions about continuation likely reflected

[50] NOMS ACO is the exception; that ACO did not generate shared savings in any year from 2013 – 2018. Its full pre-payment amount from CMS is outstanding. In July 2019, NOMS ACO entered its third agreement period.

a combination of institutional, organizational, and environmental factors that extended beyond financial results. Importantly, the transition to Pathways to Success may have influenced some AIM ACOs to not renew that otherwise may have done so for an additional three years under an upside-only financial risk track, whereas AP ACOs had more time to stay in an upside-only risk track.

7. Final Conclusions on AIM

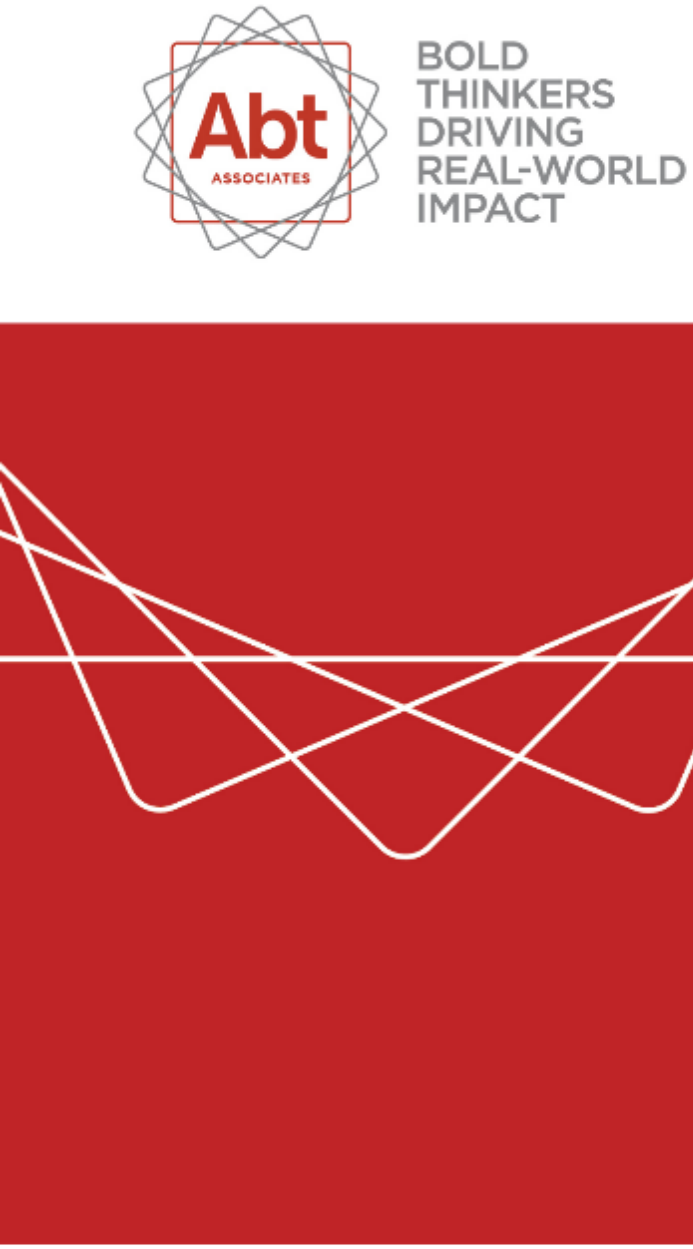
AIM ACOs faced the challenge of bringing accountable care to areas of the nation that might otherwise have lacked access to alternative payment models. To do so, many of the AIM ACOs relied on relationships with management companies to support ACO operations, share performance feedback with providers, and provide stability given rural workforce challenges such as issues related to staff turnover and retention. Ultimately, most AIM ACOs opted not to assume the financial risk of two-sided shared savings and exited the program. Past financial performance in the Shared Savings Program was an important factor for ACOs when deciding to renew in the redesigned program participation options under Pathways to Success, but it was not the only factor, as many ACOs with financial success exited.

Some ACOs, particularly those affiliated with one management company, elected to exit the Shared Savings Program in their current form and re-join as larger entities that could more easily spread financial risk. We found that exiting AIM ACOs tended to be more rural than those that remained, but it may be that some of these rural and underserved areas did not lose access to ACOs if participants remained in the same markets and simply reconfigured rather than continue in their original formation. Future analyses should consider whether the AIM impacts were sustainable with the new configurations.

If given the option, many AIM ACOs might have renewed with upside-only financial risk. This observation was supported by the behavior of ACOs that participated in the AP ACO Model, the predecessor to AIM. After two years of receiving AP funds, half the AP ACO cohort renewed in the Shared Savings Program in a one-sided financial risk track. In 2019, about two-thirds of those remaining AP ACOs renewed under Pathways to Success. Many AIM ACOs indicated interest in having more time in an upside-only financial risk track and some mentioned needing financial incentives to remain in the Shared Savings Program. We further note that, based on the AIM rules, AIM Test 1 ACOs that did not renew after the first participation period in the Shared Savings Program were not required to pay back any remaining AIM funds, which may have factored in the AIM ACOs' decisions to renew in the Shared Savings Program in their current form.

Over three AIM performance years, we estimated that AIM resulted in substantial decreases to total Medicare spending, even net of payments by CMS for earned shared savings and unrecouped AIM payments. Indeed, we estimated decreases in total Medicare spending for both AIM ACOs that renewed and those that decided to exit the program. We did not find the reductions in Medicare spending and utilization to be offset by reductions in the quality of care provided or patient and caregiver experiences.

CMS may wish to weigh the benefits and costs of transitioning small, rural ACOs to two-sided financial risk tracks. These ACOs may take longer than a few years in an upside-only financial track before they are willing to take accountability for potential financial losses, and our findings thus far have shown that total Medicare spending net of shared savings can decline while allowing ACOs to remain in a one-sided financial risk track. Moreover, Medicare beneficiaries in rural areas may benefit from the presence of an ACO, even if the ACO is not additionally delivering care under the risk of financial losses. Future work could follow outcomes in geographic areas where AIM ACOs exited and did not reform or join other ACOs to determine whether there were any negative consequences to the disbanding of AIM ACOs.


Abt
ASSOCIATES
BOLD
THINKERS
DRIVING
REAL-WORLD
IMPACT