

CHAPTER

6

**Assessing the Medicare
Shared Savings Program's
effect on Medicare spending**

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Chapter summary

Organizations of providers that agree to be held accountable for cost and quality of care are called accountable care organizations (ACOs). The Commission has long been interested in ACOs in part to help counter the incentives in fee-for-service Medicare to provide more services so as to increase Medicare payments. About a third of the beneficiaries in the traditional Medicare fee-for-service program are now assigned to ACOs. CMS assigns beneficiaries to ACOs if they have a history of visits to ACO clinicians. Most of these beneficiaries are assigned to ACOs in the Medicare Shared Savings Program (MSSP), a permanent ACO model established in the Patient Protection and Affordable Care Act of 2010 (PPACA). The first MSSP ACO started in April 2012, and the MSSP has grown rapidly. In 2018, there were 561 MSSP ACOs.

The goals for ACOs are to improve coordination and quality of care, maintain beneficiary choice of provider, and reduce unnecessary service use. ACOs may qualify for financial rewards (“shared savings”) if the spending for their assigned patients is lower than the benchmark set by CMS. Thus, an ACO’s performance relative to its benchmark is important to the ACO. In 2017, CMS reported that, on average, spending on ACO beneficiaries was sufficiently below the established benchmarks that many ACOs earned shared savings.

In this chapter

- Introduction
- Estimates of savings from the Medicare Shared Savings Program
- Methods for assigning beneficiaries to ACOs and patient selection issues

CMS’s benchmarks are designed to create incentives for individual ACOs to keep spending on their assigned population low while maintaining or improving quality and fulfilling other policy goals. For example, CMS has modified how benchmarks are rebased to encourage ACOs to continue to participate. Benchmarks, therefore, cannot be taken as estimates of what spending growth would have been if the MSSP did not exist. Instead, estimating the impact of the MSSP on Medicare spending requires the use of a “counterfactual.” A counterfactual analysis uses comparison groups to estimate whether the MSSP as a whole resulted in savings or additional costs for the Medicare program. While benchmarks are set in advance, counterfactual analysis is done after the fact, using spending trends for beneficiaries not in ACOs—that is, using information that was not available when benchmarks were set. When combined with analysis of the MSSP’s effects on other parameters, such as quality, analysis of MSSP spending relative to a counterfactual can help determine the value of the MSSP to the Medicare program and to taxpayers.

To evaluate the effect of the MSSP on Medicare program spending, the Commission estimated spending for beneficiaries assigned to these ACOs and compared that spending with what spending would have been in the absence of the MSSP. We tested several methods of defining a treatment group (those assigned to the ACO) and a counterfactual comparison group (those not assigned to the ACO) and compared spending (or spending growth) between the two groups. We found that decisions about how the treatment and comparison groups are defined can affect the magnitude and validity of estimates of program savings.

A beneficiary’s assignment to an ACO is linked to the beneficiary’s service use history, and a change in health care status that alters a beneficiary’s service use (such as the onset of a disease requiring more visits to a physician or visits to a new physician) can also lead to a change in Medicare’s assignment of the beneficiary either into or out of an ACO. The connection between changes in health status and changes in ACO assignment (which we refer to as “switching”) complicates the estimate of program savings: We found that beneficiaries who are switched into and out of an ACO tend to have high spending. These “switchers” tend to be beneficiaries who have growing risk scores and are more likely to be hospitalized in the year of switching.

Because current methods of risk adjustment are not complete enough to account for the higher costs of switchers, how these beneficiaries are included in the treatment and comparison groups has implications for savings estimates. For example, when researchers compare beneficiaries who were ever assigned to an ACO with those who were never assigned to an ACO, the treatment group (“ever assigned”) can include a large number of switchers. That is, along with beneficiaries who have

been continuously assigned to the same ACO, the treatment group includes all beneficiaries who were switched into or out of any ACO during the observation period. Because switchers tend to have high spending growth, a study in which the treatment group includes a disproportionately large number of switchers will be unlikely to find savings from ACOs. Conversely, if researchers define the treatment group as beneficiaries continuously assigned to ACOs over time, the study would be biased toward finding large savings from ACOs because all switchers would be included in the control group. A study that defines the treatment group as those in an ACO in a recent year (for example, in the ACO in 2016) also may overstate savings, in part because of “survivor bias.” In this case, beneficiaries who may have been assigned to an ACO in previous years but have been switched out are likely to have higher spending growth on average than those who stayed assigned to ACOs (“survivors”). Those beneficiaries with high spending growth would be excluded from the treatment group.

Analyses of the impact of the MSSP on Medicare program spending thus must be carefully designed. The Commission evaluated the performance of ACOs using an intent-to-treat approach that mitigates the effects of beneficiaries being switched into or out of ACOs as well as movement of physicians into and out of ACOs, which otherwise can complicate the analysis. To account for beneficiaries who were switched into or out of ACOs, we defined a treatment group as beneficiaries who were assigned to an ACO in 2013 and a comparison group as those beneficiaries who, though eligible for assignment, were not assigned to an ACO in 2013. This approach includes future switchers in both the treatment group (some beneficiaries in an ACO in 2013 may have been switched out subsequently) and the comparison group (some beneficiaries not enrolled in an ACO in 2013 may subsequently have been switched into one).

Using this approach, we found that the ACO treatment group had slightly slower spending growth from 2012 to 2016 than the comparison group. For the sample of beneficiaries we examined, we estimate that, by 2016, Medicare spending growth for beneficiaries in our MSSP treatment group was 1 percentage point to 2 percentage points lower than it would have been without the MSSP. The savings were somewhat larger for beneficiaries assigned to physician-only ACOs compared with beneficiaries assigned to ACOs with physicians and hospitals as members. Note that our estimate does not include any shared savings payments that were made to ACOs during that period. The MSSP can generate net savings for Medicare only if MSSP bonus payments (shared savings) are less than spending reductions resulting from lower service use.

If the effect of the MSSP on Medicare spending growth continues to be small, unintended consequences will need to be carefully monitored. For example, any favorable or unfavorable distribution of patients to individual ACOs could result in unwarranted shared savings or unwarranted shared losses for an individual ACO. Although it appears that patient selection was not a significant issue in the early years of the MSSP, there is now a potential for it to arise. Under recent changes to the MSSP, ACOs are all given the option of retrospective assignment of beneficiaries, which could allow for more effective patient selection. For example, as we discuss later in the chapter, annual wellness visits could result in a favorable selection of patients among ACOs opting for retrospective assignment.

To limit the potential for patient selection, CMS could require a system of prospective assignment and not allow any choice of retrospective assignment. Our data suggest this strategy would limit the effect of wellness visits on favorable selection of patients because a patient's future growth in spending is less predictable than current year spending growth. Prospective assignment would also give ACOs a greater incentive to keep patients assigned to their providers satisfied with their care as they become ill. Finally, prospective assignment may provide some protection for ACOs from adverse selection. Under prospective assignment, ACOs would be accountable only for spending in the year after one of their physicians has seen the patient. ■

Introduction

The Commission has long been interested in Medicare providers taking on responsibility for the costs (that is, spending in Medicare Part A and Part B) and quality of care for a defined group of Medicare beneficiaries, in part, to help counter the incentive in traditional fee-for-service (FFS) Medicare to increase the volume of services so as to increase Medicare payments. In fact, the term *accountable care organization* (ACO) was coined in a Commission meeting in November 2006 when leading health policy researcher Elliot Fisher was describing his concept of an enhanced hospital medical staff model. Under that model, all physicians associated with a hospital and all physicians who commonly referred their patients to that hospital were combined and held responsible for the Medicare spending for those patients.

Over the past decade, the Commission has weighed in on a range of ACO topics, such as whether ACOs should be mandatory or voluntary, whether they should include only clinicians or also hospitals, whether beneficiaries should enroll in ACOs or be passively assigned, and how benchmarks for determining “shared savings” should be set. The Commission has communicated its position on these topics to the Congress and to CMS in reports and comment letters.

Today in Medicare, ACOs are groups of health care providers that have volunteered to be held accountable for the cost and quality of care for a group of beneficiaries. ACOs may qualify for shared savings payments if the spending for their assigned patients is lower than expected, and they may be required to make payments to CMS if the spending is higher than expected. The goals for ACOs are to improve coordination and quality of care, maintain beneficiary choice of provider, and reduce unnecessary service use. Given the growing number of ACOs, described below, policymakers increasingly are interested in determining the value of ACOs to the Medicare program and to taxpayers.

Beneficiaries do not enroll in ACOs; instead, Medicare assigns them to ACOs based on their Medicare claims history. Although the method is somewhat complicated, the intent is to assign beneficiaries with a history of visits to an ACO’s clinicians to that ACO.¹ The beneficiary is still free to use providers outside of the ACO. Medicare provides ACOs with claims data for assignable beneficiaries—those with a qualifying primary care visit within the previous 12 months—to help the ACOs

coordinate care. This design avoids some of the overhead costs associated with Medicare Advantage (MA) plans, such as marketing, enrollment, creating networks, and paying claims. Three key terms associated with ACO design are used in this chapter: *assignment*, *composition of the ACO*, and *benchmarks*. (See text box (pp. 182–183) for definitions.)

The first Medicare ACOs began at the start of 2012 as part of the Pioneer ACO Model, a demonstration that ended in 2016. The Pioneer ACOs were larger organizations that had experience taking on risk. The program had 32 ACOs at its peak. The CMS Office of the Actuary reported that the Pioneer demonstration succeeded in modestly lowering costs for its beneficiaries (Office of the Actuary 2015). Lessons learned from the Pioneer demonstration were used in developing Track 3 of Medicare’s subsequent program, discussed below.

The Medicare Shared Savings Program has grown

The Medicare Shared Savings Program (MSSP), the focus of this chapter, was established by the Patient Protection and Affordable Care Act of 2010 (PPACA) and is a permanent part of the Medicare program. The first cohort of ACOs in the MSSP started operation midway through 2012. Since then, the program has grown considerably and, by 2016 (the end of our analysis period), had 432 ACOs with 7.9 million assigned beneficiaries. Table 6-1 (p. 184) shows the continued entry of new ACOs and an increasing exit of ACOs from the program each year. For example, 100 new ACOs entered in 2016, while 60 ACOs that were in the MSSP in 2015 exited and did not continue in 2016. Because ACOs that leave may do so because they have not been successful, entry and exit of ACOs can affect the analysis of savings. Our work examines savings from ACOs from 2012 through 2016.

Beginning in 2016, ACOs could choose from three tracks (or models) in the MSSP (Table 6-2, p. 184). Track 1 was a one-sided-risk model with retrospective assignment that had a maximum shared savings rate of 50 percent. Through 2016, almost all ACOs in the MSSP were in Track 1. A few ACOs chose Track 2, a two-sided-risk model with retrospective assignment and a shared savings rate of 60 percent; in 2016, 16 ACOs chose Track 3, a prospective two-sided-risk model with a maximum shared savings rate of 75 percent.

Key terms used in accountable care organization programs

Assignment: Beneficiaries are primarily assigned to accountable care organizations (ACOs) based on which clinicians they use for a subset of primary care evaluation and management codes. In the first step of the assignment algorithm, those services must be provided by a primary care clinician. In a subsequent step, the services can be provided by certain specialty physicians. Assignment as a process is largely invisible to the beneficiary; instead, its purpose is to allow Medicare to define a population of beneficiaries and track their health care spending. Beneficiaries assigned to ACOs can use any providers they choose within or outside of an ACO.

- **Prospective** assignment occurs when beneficiaries are assigned to an ACO at the start of the performance year (based on the beneficiaries' prior year use or voluntary designation of a primary care clinician). Under prospective assignment, if assigned beneficiaries choose to go to a provider

outside of the ACO, the ACO remains responsible for that spending. This system creates a stronger incentive for the ACO providers to satisfy their patients and have them continue to choose providers in the ACO.

- **Retrospective** assignment occurs when beneficiaries are assigned at the end of the year (based on their current year usage). Under retrospective assignment, beneficiaries can lose assignment if they choose providers outside the ACO. The ACO will not be accountable for beneficiaries who lose assignment because they were unsatisfied with their care.
- **Computing “shared savings” with retrospective and prospective assignment.** When CMS estimates shared savings, it is important that benchmarks incorporate spending trends for comparable assignable beneficiaries. For ACOs

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Beneficiary assignment is dynamic

As shown in Table 6-1 (p. 184), between 2012 and 2016, the number of beneficiaries assigned to MSSP ACOs increased from 2.1 million to 7.9 million. However, there was considerable “churn” in the individual beneficiaries assigned over time. That is, CMS moved individual beneficiaries into and out of assignment to ACOs during that period. Because Medicare assigns beneficiaries to ACOs based on their Medicare claims history, when beneficiaries see different clinicians, they can gain or lose assignment to an ACO. The method used for assignment in the MSSP is somewhat complicated, and has changed over time. The method used in the time period of interest is described in more detail in the text box on beneficiary assignment (pp. 186–187). Throughout, the intent has been to assign beneficiaries with a history of visits to an ACO's clinicians to that ACO.

To illustrate the dynamics of assignment in the MSSP, Table 6-3 (p. 185) shows the share of beneficiaries who remained continuously assigned to an ACO over time. For example, for ACOs that entered the MSSP in 2013, only 59 percent of the originally assigned beneficiaries remained assigned in 2016. (We include in this figure only beneficiaries who were alive in all years examined, resided in the same county, and remained eligible for assignment by having a qualifying visit with a physician.) These figures seem to trend slightly lower for later ACO entrants. In addition, we found that retention was consistently somewhat lower (4 percentage points to 7 percentage points) for physician-only ACOs compared with ACOs with hospitals (data not shown). For example, among ACOs that entered the MSSP in 2013, physician-only ACOs retained 57 percent of the originally assigned beneficiaries through 2016 compared with 61 percent retention for ACOs with hospitals.

Key terms used in accountable care organization programs (cont.)

with retrospective assignment, the comparison group also qualifies for retrospective assignment by having a qualifying physician encounter in the assignment year, which is also the performance year. With prospective assignment, the comparison group will be beneficiaries with a qualifying physician encounter in the assignment year, which is the year before the performance year. Consequently, some patients at the end of life will be assignable in the year before death, but not in the year of death. Therefore, one effect of prospective assignment will be to direct greater rewards to those providers that can manage end-of-life costs in accordance with beneficiaries' preferences.

Composition of the ACO: ACOs can be clinician-only ACOs or can include providers such as hospitals and skilled nursing facilities. An ACO's providers do not have to provide all services for a beneficiary, although they are accountable for a beneficiary's total Part A and Part B spending. The essential requirement is that

the providers as a group have enough beneficiaries assigned to them to meet the minimum requirement for their model (e.g., 5,000 beneficiaries).

Benchmarks: ACO performance is assessed using a set of quality measures and spending benchmarks. (Quality performance is not discussed in this chapter; see our June 2018 report to the Congress.) The spending benchmark is an estimate of Part A and Part B spending for an ACO's beneficiaries in a given year. If spending for an ACO's beneficiaries—including health care services provided outside the ACO—is below the benchmark, the ACO is eligible to earn a shared savings payment. If spending is above the benchmark, the ACO may be financially liable for shared losses. One-sided-risk arrangements are ones in which ACOs can earn shared savings but are not responsible for losses; two-sided-risk arrangements are ones in which ACOs can earn savings and are responsible for shared losses. The amount of shared savings an ACO is eligible to earn varies by model. ■

Over the same time, some beneficiaries were newly assigned to these ACOs.² Beneficiaries whom Medicare switches into and out of ACOs and beneficiaries continuously assigned to the same ACOs have very different spending patterns. In Table 6-4 (p. 185), we report the change in spending for a cohort of beneficiaries over two periods. The first period, from 2014 to 2015, is the year before being switched. The second period, from 2015 to 2016, is the year of the switch. (Spending in each period is standardized as if beneficiaries had an average hierarchical condition category (HCC) risk score of 1.0) Spending growth for beneficiaries who were switched was higher from 2015 to 2016 compared with beneficiaries assigned continuously. (Spending for those assigned continuously actually decreased 3 percent from 2014 to 2015 and increased only 2 percent from 2015 to 2016.) In addition, the switched beneficiaries had higher growth in spending during the year they were switched (2016) than the year before. Notably, spending growth for those no longer assigned to an ACO in 2016 (the last two

rows) tended to be substantial from 2015 to 2016. Thus, being switched into or out of an ACO was associated with higher growth in spending.

Estimates of savings from the Medicare Shared Savings Program

The movement of beneficiaries into and out of ACOs and the higher spending associated with those beneficiaries has profound implications for estimates of savings from the MSSP.

Our analysis therefore raised several methodological issues in determining whether the MSSP produced savings for the Medicare program through 2016. In the literature, this question is approached by analyzing how much was spent on beneficiaries in MSSP ACOs relative

**TABLE
6-1****Number of MSSP ACOs and assigned beneficiaries, 2012–2016**

	2012	2013	2014	2015	2016
MSSP ACOs					
Total number at beginning of performance year	114	220	333	392	432
New to program	114	106	119	89	100
Continuing from previous year	0	114	214	303	332
Total number at beginning of previous year	N/A	114	220	333	392
Exited previous year	N/A	0	6	30	60
Number of beneficiaries (in millions)					
	2.1	3.7	5.3	7.3	7.9

Note: MSSP (Medicare Shared Savings Program), ACO (accountable care organization), N/A (not applicable).

Source: MedPAC analysis of CMS MSSP data.

to what would have been spent for these beneficiaries in the absence of the MSSP ACOs—that is, relative to a counterfactual. Our efforts to produce a counterfactual examined differences in beneficiaries’ Medicare spending growth as a function of the beneficiaries’ assignment to MSSP ACOs. This approach required us to determine to what extent beneficiaries who are switched into and out of ACOs should be included in the ACO treatment group or the comparison group used to construct the counterfactual.

A very different question is MSSP ACOs’ performance relative to the benchmarks set by CMS. According to statute, CMS has to set benchmarks to evaluate the MSSP

ACOs’ performance. For each ACO, CMS sets an initial benchmark, updates that benchmark each year, and rebases the benchmark at the beginning of each subsequent agreement period (every three years for the years included in this analysis). If actual spending for an ACO’s assigned beneficiaries is below this benchmark, the ACO may be eligible for a bonus called “shared savings.”

Savings relative to CMS-constructed benchmarks and other estimates of ACO savings can differ because CMS constructs benchmarks in advance and to fulfill policy goals such as encouraging ACO participation. Instead of using benchmarks, researchers have used different

**TABLE
6-2****Almost all ACOs were in Track 1, 2012–2016**

	2012	2013	2014	2015	2016
Track 1	110	215	330	389	410
Track 2	4	5	3	3	6
Track 3	0	0	0	0	16
Total	114	220	333	392	432

Note: ACO (accountable care organization). Track 1 was a one-sided-risk model with retrospective assignment that had a maximum shared savings rate of 50 percent. Track 2 was a two-sided-risk model with retrospective assignment and a shared savings rate of 60 percent. Track 3 was a two-sided-risk model with prospective assignment and a maximum shared savings rate of 75 percent.

Source: MedPAC analysis of CMS Medicare Shared Savings Program data.

**TABLE
6-3**

Share of MSSP beneficiaries who were continuously assigned to the same ACO, by entry year

ACO entry year	Number of beneficiaries who were originally assigned	Share of beneficiaries who remained assigned to same ACO in:		
		Year 2	Year 3	Year 4
2013	715,241	83%	72%	59%
2014	760,388	82	66	
2015	909,940	79		

Note: MSSP (Medicare Shared Savings Program), ACO (accountable care organization). Analysis includes only beneficiaries who, for the entire 2012 to 2016 period, (1) were alive, (2) were enrolled in fee-for-service Medicare, (3) had an evaluation and management visit in every year, (4) resided in the same county, and (5) were assigned to an ACO that had an MSSP contract in 2016.

Source: MedPAC analysis of CMS MSSP data and Chronic Conditions Data Warehouse.

methods to assess whether ACOs save Medicare money. These alternative assessments construct a counterfactual—that is, what spending on the beneficiaries in the ACO would have been in the absence of the ACO—to estimate savings for the Medicare program and evaluate the impact of the MSSP. Those estimates are made using data on actual spending, unlike benchmarks, which must be prospectively calculated using data from a period before the performance year. The counterfactual also does not reflect any efforts to attain policy goals embedded in the benchmarks. Thus, one should not confuse savings relative to benchmarks (which determine bonus payments) with

program savings estimated by counterfactual analysis (which help evaluate the effectiveness of the MSSP). The rest of this chapter explains how different methodological approaches of arriving at a counterfactual yield different estimates of savings.

The importance of defining the treatment group and the comparison group when estimating savings from the MSSP

When estimating savings from the MSSP, researchers define a comparison group to develop a counterfactual against which to compare spending growth for the

**TABLE
6-4**

Change in HCC-standardized spending by change in ACO-assignment status

2015–2016 ACO assignment	Yearly change in HCC-standardized spending	
	From 2014 to 2015	From 2015 to 2016
Continuously assigned beneficiaries (in the same ACO in 2015 and 2016)	–3%	2%
Beneficiaries newly assigned to an existing ACO in 2016	6	7
Beneficiaries no longer assigned to existing ACO in 2016	2	20
Beneficiaries switched from existing ACO to different ACO in 2016	5	23

Note: HCC (hierarchical condition category), ACO (accountable care organization). ACO assignment in 2015–2016 was based on utilization during the 2015–2016 period. This analysis includes only beneficiaries who, for the entire 2012 to 2016 period, (1) were alive, (2) were enrolled in fee-for-service Medicare, (3) had an evaluation and management visit in every year, (4) resided in the same county, and (5) either were assigned in the prior year to an ACO that did not leave the MSSP or were newly assigned to an ACO that was in the MSSP in the prior year.

Source: MedPAC analysis of beneficiary-level spending data from the CMS Chronic Conditions Data Warehouse.

Beneficiary assignment in the MSSP

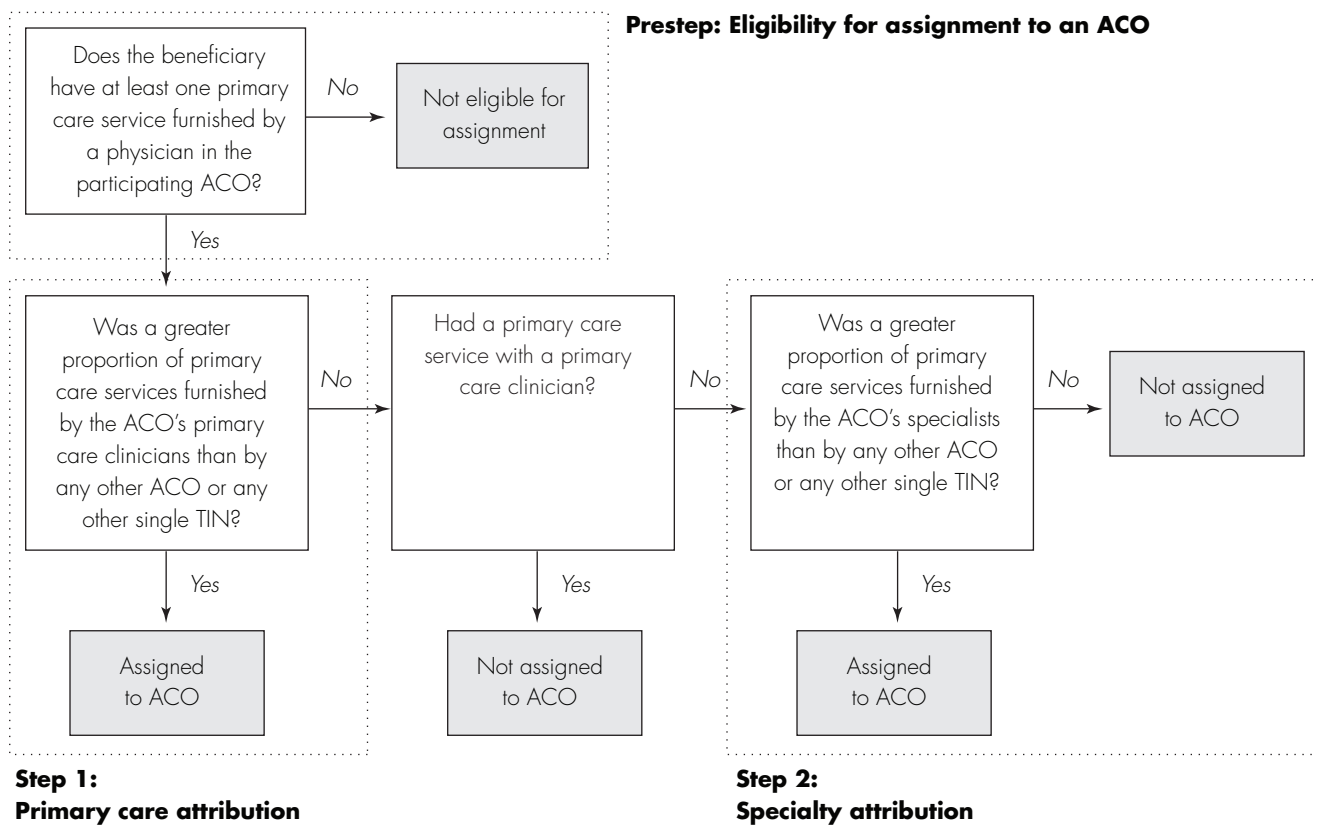
In the Medicare Shared Savings Program (MSSP), beneficiaries are assigned to MSSP accountable care organizations (ACOs) in a multistep process as shown in Figure 6-1.

In general, the claims history of beneficiaries who are eligible for ACO assignment is reviewed. Beneficiaries are eligible for assignment if they meet certain criteria, including having been in Part A and Part B of Medicare

(continued next page)

FIGURE 6-1

ACO assignment in the Medicare Shared Savings Program



Note: ACO (accountable care organization), TIN (taxpayer identification number). According to regulations found in 42 CFR §425.20, an ACO is identified by a Medicare-enrolled TIN that alone or together with one or more other ACO participants constitutes the ACO. The proportion of primary care services is measured by Medicare-allowed charges. Specialty attribution occurs only for beneficiaries who did not have a primary care service with a primary care clinician but did have a service with an ACO specialist.

Source: Centers for Medicare & Medicaid Services. Financial and beneficiary assignment specifications Versions 3–6. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/program-guidance-and-specifications.html>.

treatment group. The assumption is that the comparison group is a proxy for how fast costs would have grown in the treatment group (the MSSP group) if those Medicare beneficiaries' physicians had not formed an MSSP ACO and been given the incentives in the MSSP.

Our analysis shows that estimated savings can vary depending on how the treatment group and comparison group are defined. As shown in Table 6-5 (p. 188), the treatment group most likely to show MSSP savings includes only individuals in the MSSP in 2016. This

Beneficiary assignment in the MSSP (cont.)

for 12 months (so that they have a claims history) and not having been enrolled in Medicare Advantage during that time.

First, to be assigned to an MSSP ACO, a beneficiary must have at least one primary care (PC) service furnished by a physician in the participating ACO. Services are designated *primary care services* by regulation. In this prestep, the services must be furnished by an ACO physician of any specialty but not by a nonphysician. (More detail on definitions of primary care services and ACO physicians and nonphysicians can be found in online-only Appendix 6-A, available at <http://www.medpac.gov>.)

The remaining steps for assignment are described below:

Step 1: PC attribution

- The beneficiary must receive at least one PC service from a PC clinician at the participating ACO and more PC services furnished by PC clinicians at the participating ACO than from PC clinicians at (1) any other ACO or (2) PC clinicians in any single taxpayer identification number (TIN) (clinicians in the same practice often bill Medicare

under a single TIN. Thus, Medicare uses TINs to define which clinicians are in an ACO. TINs were not designed for this purpose and can vary widely in the number of clinicians included in them.)

- Services/clinicians: Primary care services, primary care clinicians at the ACO, and primary care clinicians at any other TIN (see online-only Appendix 6-A for descriptions of these categories).

Step 2: Specialty attribution (only for beneficiaries who did not have a primary care service with a primary care clinician)

- The beneficiary must receive at least one PC service from a specialist physician at the participating ACO and more PC services from ACO specialist physicians than from specialist physicians in (1) any other ACO or (2) a non-ACO TIN.
- Services/clinicians: Primary care services, physicians in a certain set of specialties at the ACO, and physicians in a certain set of specialties at any other TIN (see online-only Appendix 6-A for descriptions of these categories). ■

method is biased toward finding additional savings because beneficiaries who were dropped from ACO assignment had higher spending growth than those who were continuously assigned, and ACOs that were not successful (possibly due to random variation that gave them a low benchmark) may have been more likely to drop out of the MSSP. (Indeed, researchers from the University of Michigan found that high-risk beneficiaries and physicians with higher risk beneficiaries were disproportionately likely to be dropped from or exit MSSP ACOs (Markovitz et al. 2019).) Under this approach, beneficiaries with relatively high spending growth disproportionately end up in the comparison group (e.g., not in an ACO in 2016), while the treatment group is more likely to include beneficiaries who maintained their health status and ACOs that have been successful enough to stay in business through 2016 (we refer to these two phenomena together as “survivor bias”).

Another method defines the treatment group as those who were ever assigned to an ACO and the comparison group as those never assigned to an ACO. However, this method is biased against finding savings. Under this approach, beneficiaries who are switched into and out of an ACO are all assigned to the treatment group. We have shown that these “switchers” tend to have high spending, possibly due to changes in health status causing them to switch clinicians. This method will result in low estimated savings. A group of National Institutes of Health (NIH) researchers using this method found no savings from the MSSP (Kury et al. 2016).

An intent-to-treat model will include switchers in both the treatment group and the comparison group and thus has less potential for bias. For example, the intent-to-treat model in a recent Harvard study, shown in the

**TABLE
6-5**

Definitions of treatment and comparison groups influence findings of savings from the MSSP

Treatment group	Comparison group	Potential bias	Findings
Beneficiaries in an ACO in 2016	Beneficiaries not in an ACO in 2016	<i>Survivor bias:</i> High spending growth beneficiaries are dropped from ACO, or ACO exits the program and beneficiaries end up in the comparison group	Finds modest savings
Beneficiaries ever in an ACO	Beneficiaries never in an ACO	<i>Switcher bias:</i> Those who switch clinicians tend to have rising costs and are more likely to be in the ever-in-an-ACO group	Finds no savings
<i>Intent-to-treat model:</i> Physician practices that were in an ACO in a particular year (e.g., 2013) continue to be considered ACOs even if they drop out of the program	Beneficiaries treated by physician groups that were not in the MSSP in 2013 (but physician groups could participate in the MSSP later)	Less potential for bias (no survivor bias or switcher bias)	Finds some savings for physician-only ACOs
<i>Initially assigned to an ACO:</i> Beneficiaries assigned to an ACO in 2013 are tracked through to 2016 even if they were subsequently dropped from the ACO	Beneficiaries not in the ACO in 2013 (but could be assigned to an ACO later)	Less potential for bias (no survivor or switcher bias)	Finds some savings for physician-only ACOs

Note: MSSP (Medicare Shared Savings Program), ACO (accountable care organization).

Source: MedPAC literature review and analysis of Medicare claims.

third row of Table 6-5, illustrates this point. The study’s researchers defined the treatment group as including those patients seen by a physician practice that participated in an ACO in 2013. If the practice was in an ACO in 2013 and then dropped out, the researchers still considered that group’s patients to be in the treatment group. The Harvard researchers found small savings using this method (McWilliams et al. 2018). We tested an alternative intent-to-treat model described in the bottom row of the table. We examined whether beneficiaries who were assigned to an ACO in 2013 had lower spending growth through 2016 than beneficiaries who were not assigned to an ACO in 2013. Even if the ACO dropped out of the MSSP or the patient switched doctors, we viewed those patients as being in the treatment group, meaning they were put on

an ACO path in 2013. We found savings similar to those found by the Harvard researchers, as seen in Table 6-5.

Analytic approach

Our analyses show that the definitions of treatment group and comparison group appear to matter more than other methodological decisions in estimating the magnitude of ACO savings. We arrived at this conclusion by examining changes in spending for a constant cohort of 2.8 million beneficiaries who were assigned to ACOs at any time, from 2013 to 2016. We compared their changes in spending with changes for 3.8 million beneficiaries who were never assigned to an ACO from 2013 to 2016 but lived in the same market as those beneficiaries in the ACO cohort.³

To help ensure that the ACO beneficiaries were comparable with the non-ACO beneficiaries, we required that both groups of beneficiaries be continuously in FFS Medicare from 2012 through 2016 and be alive through 2016.⁴ We also limited our analysis to beneficiaries with an evaluation and management (E&M) visit during 2013, 2014, 2015, and 2016 to reflect that they were potentially eligible for MSSP assignment each year and were continuously engaged in the health care system. We excluded beneficiaries who were in the Pioneer ACO Model or in the MSSP only in 2012.

Next, we examined whether moving into or out of an ACO from 2013 to 2016 was associated with higher or lower growth in spending from 2012 to 2016. We tracked individuals over time to mitigate results that stem from changes in ACO markets, changes in ACO providers, and changes in risk scores resulting from coding differences rather than health status differences.

To analyze MSSP savings using a counterfactual model, we used a descriptive statistical approach to determine whether spending growth from 2012 to 2016 was affected by changes in ACO assignment. We calculated spending growth for beneficiaries relative to the market average. To calculate growth rates, we used average spending in the market rather than an individual's starting level of spending to avoid the influence of outliers who start at low spending levels and grow to a high level of spending. For example, in a market with average monthly spending of \$1,000, someone who starts at \$10 per month and ends at \$20,010 per month in 2016 would have their spending growth measured as \$20,000/\$1,000 rather than \$20,000/\$10).

A key problem in evaluating savings is that health status changes (which are not completely controlled for with risk adjusters) can lead beneficiaries to change physicians, which may in turn trigger changes in whether the patient is assigned to an ACO. In the MSSP, CMS assigns beneficiaries to MSSP ACOs retrospectively.⁵ Thus, a change in a beneficiary's health status in 2016 could cause both a change in the beneficiary's ACO assignment (into or out of an ACO) in 2016 and a change in the beneficiary's Medicare spending in 2016. The effect of these changes in health status and resulting changes in assignment highlights both the difficulty in evaluating ACOs' savings for the Medicare program and the importance of a beneficiary's assignment (or not) to an ACO based on service use in the MSSP.

In an analysis to explore why assignment switching occurs, we excluded beneficiaries from the analysis who were switched due to Medicare enrollment (i.e., Medicare Part A, Part B, or Part C status), death, change of residence, or lack of an E&M visit. These exclusions allowed us to observe whether assignment switching corresponded with health status changes, such as increases in risk scores, new hospitalizations, and new home health visits.

Using our cohort of FFS beneficiaries who were alive and eligible for ACO assignment from 2012 to 2016, we estimated the effects of MSSP assignment on savings from 2012 to 2016 as the difference between the change in spending for ACO-assigned beneficiaries and the change in spending for a comparison group of assignable beneficiaries in the same market. We found that estimated savings differ depending on the definition of ACO treatment and comparison groups. The three definitions of treatment and control groups we examined are: (1) beneficiaries ever assigned to an ACO compared with those never assigned to an ACO, (2) beneficiaries assigned to an ACO in 2013 compared with those not assigned to an ACO in 2013, and (3) beneficiaries assigned to an ACO in 2016 compared with those not assigned to an ACO in 2016.⁶

For each of these three scenarios, we first examined descriptive statistics on changes in spending between the treatment and comparison groups before any risk adjustment or propensity weighting. Next, we compared growth in spending for the treatment group with a control group whose beneficiaries were weighted by their similarity to the treatment group using market-level propensity scores (based on the likelihood of matching ACO beneficiary characteristics in a market defined as the metropolitan statistical area (MSA) within a state). Finally, using a linear regression difference-in-difference model, we tested whether and how estimated MSSP savings changed after controlling for a series of beneficiary characteristics.

Changes in ACO assignment are related to spending growth

In Table 6-6 (p. 190) and Table 6-7 (p. 191), we examine relationships among changes in ACO assignment, changes in spending levels, and market characteristics. The objective is to show the problematic connection between changes in beneficiaries' ACO assignment and changes in beneficiary spending. Under this approach, we find the following:

**TABLE
6-6**

Beneficiaries who were switched into or out of an MSSP ACO had higher than average spending growth, 2012–2016

Beneficiary assignment	Percentage point difference in spending growth relative to the market average, 2012–2016	Number of beneficiaries in category
Assigned to the same physician-only ACO in 2013, 2014, and 2015	-5.6	216,143
Assigned to the same hospital ACO in 2013, 2014, and 2015	-2.3	341,576
Switched into or out of an ACO in 2013, 2014, or 2015 or into an ACO in 2016	3.1	2,247,568
Never assigned to an ACO (2013–2016)	-1.3	3,838,089

Note: MSSP (Medicare Shared Savings Program), ACO (accountable care organization). A “hospital ACO” is an ACO with a participating hospital(s) as well as physicians. Beneficiaries were tracked over time to eliminate the need to adjust for coding. “Percentage point difference in spending growth” is the change in spending for the beneficiary from 2012 to 2016 minus the average for the market. These are initial descriptive statistics without any propensity score matching of individuals.

Source: MedPAC analysis of beneficiary-level spending data from the CMS Chronic Conditions Data Warehouse.

- Beneficiaries who stayed assigned to the same ACO from 2013 to 2016 had low spending growth relative to their market. These beneficiaries may disproportionately have been individuals without major changes in health status.
- Beneficiaries who were switched from non-ACO clinicians to ACO clinicians in 2016 tended to have high spending growth from 2012 to 2016.
- Beneficiaries who were switched from ACO clinicians to non-ACO clinicians in 2016 also tended to have high spending growth from 2012 to 2016.
- Beneficiaries who were never assigned to an ACO (though they may have switched among non-ACO clinicians) tended to have slightly lower than average spending growth relative to their market.

Specifically, Table 6-6 examines the relationship between our measure of spending growth and (1) physician and hospital participation in an ACO and (2) consistency of ACO assignment. The findings are presented as the percentage point difference between the percentage point change in spending from 2012 to 2016 for the specified population relative to the average percentage point change in spending in its market.

Table 6-6 shows that beneficiaries assigned to a physician-only ACO in all three years had spending growth 5.6 percentage points below their market average.⁷ The difference in spending growth for beneficiaries assigned to physician-only ACOs is greater than for beneficiaries consistently assigned to ACOs with hospitals (2.3 percentage points below market average). (In part, this greater difference is because physician-only ACOs tend to be in markets with higher initial service use than ACOs with hospitals, as shown in the text box (pp. 192–193) on initial service use as a predictor of savings performance.)

Beneficiaries in the same markets who were never assigned to an ACO also had lower than average spending growth overall. However, beneficiaries who were either switched into or out of an ACO had above-average growth. This group encompasses most beneficiaries who had ever been assigned to an ACO; their spending grew at a higher rate than the market average in all market areas.

In Table 6-7, we more closely examine beneficiaries who were switched into or out of ACOs. To do so, we look first at beneficiaries assigned to the same ACO from 2013 through 2016 and then at those who were assigned to the same ACO from 2013 through 2015, but were switched

**TABLE
6-7**

Changes in beneficiaries' spending growth and assignment are related

Beneficiary assignment with an ACO	Percentage point difference in spending growth relative to the market average, 2012-2016	Number of beneficiaries in category
Assigned to same ACO in 2013, 2014, 2015, and 2016	-10.0	408,292
Assigned to same ACO from 2013 to 2015, but dropped in 2016	13.8	149,427
Switched from one ACO to another ACO during 2013, 2014, or 2015	1.2	1,777,369
First ACO assignment in 2016 to an ACO that was newly formed in 2016	2.1	183,615
First ACO assignment in 2016 to an existing ACO (started before 2016)	16.0	281,300
Never assigned to an ACO (2013-2016)	-1.3	3,838,089

Note: ACO (accountable care organization). Analysis included beneficiary-level spending data from the CMS Chronic Conditions Data Warehouse for 10 million Medicare beneficiaries who were either continuously assigned to a Medicare Shared Savings Program ACO or never assigned to an ACO. Individuals were tracked over time to eliminate the need to adjust for coding. Relative percentage change in spending is the individual's change in spending from 2012 to 2016 minus the average for the market. These are initial descriptive statistics without any propensity score matching.

Source: MedPAC analysis of beneficiary-level spending data from the CMS Chronic Conditions Data Warehouse.

out in 2016. (These two groups combined comprise the beneficiaries shown in the first two rows of Table 6-6). We see that the patterns of spending growth are very different for those two groups. Those beneficiaries who maintained their ACO assignment in 2016 had spending growth from 2012 to 2016 that was 10 percentage points lower than their market average. Those beneficiaries who had been assigned to the same ACO for three years and then were dropped in 2016 had spending growth from 2012 to 2016 that was 13.8 percentage points above average. This difference likely was due to a significant health status change in 2016 because the “dropped” group’s growth from 2012 to 2015 was 3 percentage points below the market average (not shown in table).

Spending growth was slightly higher than average for those who were switched among ACOs in 2013, 2014, or 2015 and for those who were first assigned in 2016 to a new ACO. However, those who were first assigned to an existing ACO in 2016 had much higher growth than

average, 16 percentage points above the average for their market. Finally, those beneficiaries never assigned to an ACO had slightly lower growth overall.

What explains these findings? Changes in health status may be associated with (and indeed may cause) changes in ACO assignment, which is most clearly illustrated by the contrast between beneficiaries whose first assignment was to a new ACO versus an existing ACO in 2016. To be first assigned to an ACO that formed in 2016, a beneficiary did not need to experience any change in care patterns or health care use. The beneficiary’s assignment to the ACO may have been triggered solely by his or her physician’s decision to join an ACO. By contrast, to be assigned to an existing ACO in 2016 after not being assigned for the three previous years, a beneficiary likely experienced a change in health status that affected his or her care patterns enough to affect assignment. Most likely, the beneficiary started to use more services from ACO clinicians. Overall spending growth for this group was 16 percentage points

Initial service use in market is an important predictor of performance

In Table 6-8, we present the findings for accountable care organizations (ACOs) in three different sets of markets: those with service use that is more than 10 percent below the national average (low-use areas), those in the middle (medium-use areas), and those with service use that is more than 10 percent above the

average (high-use areas). The findings are presented as the percentage point difference between the percent change in spending from 2012 to 2016 for the specified population relative to the average percent change in spending in its market.

(continued next page)

**TABLE
6-8**

ACOs tended to have a larger impact on spending in areas that previously had high use

Percentage point difference in spending growth relative to the average growth in the market, 2012-2016 (number of beneficiaries in category)

Beneficiary assignment with an ACO	Low-use areas	Medium-use areas	High-use areas	Overall average
Assigned to the same physician-only ACO in 2013, 2014, and 2015	-4.6 (12,989)	-5.5 (155,264)	-6.3 (47,890)	-5.6 (216,143)
Assigned to the same hospital ACO in 2013, 2014, and 2015	-0.6 (39,937)	-2.4 (287,395)	-6.4 (14,244)	-2.3 (341,576)
Switched into or out of an ACO in 2013, 2014, 2015 or into an ACO in 2016	3.8 (174,555)	3.5 (1,765,948)	1.0 (307,065)	3.1 (2,247,568)
Never assigned to an ACO (2013-2016)	-1.0 (559,777)	-1.6 (2,813,296)	0.2 (465,016)	-1.3 (3,838,089)

Note: ACO (accountable care organization). Individuals were tracked over time to eliminate the need to adjust for coding. Historical service use in an area was computed by adjusting 2010 to 2012 spending for regional prices and beneficiary hierarchical condition category score. Low-use areas have risk-adjusted service use per beneficiary that is more than 10 percent below the national average; high-use areas have service use more than 10 percent above the national average. "Percentage point difference in spending growth" is the individual's change in spending from 2012 to 2016 minus the average for the market. These are initial descriptive statistics without any propensity score matching of individuals.

Source: MedPAC analysis of beneficiary-level spending data from the CMS Chronic Conditions Data Warehouse.

higher than average spending growth in the related markets.

Similarly, beneficiaries who were switched out of an ACO in 2016 had high spending growth (13.8 percentage points higher than their market average) and presumably a change in physicians. Several types of health status changes could trigger a change in ACO assignment in 2016. For example, if beneficiaries were hospitalized, they

could have been referred to the hospital's physician group for further treatment or to a skilled nursing facility (SNF). In the SNF, they could have been seen by physicians not in the ACO and been assigned to new physicians as a result. (In 2017, CMS removed E&M visits in SNFs from the ACO assignment algorithm.)

The continuously assigned beneficiaries had 10 percent lower growth, potentially for three reasons. First,

Initial service use in market is an important predictor of performance (cont.)

Table 6-8 shows that beneficiaries assigned to a physician-only ACO in all three years had spending growth below their market average. The effect was –4.6 percentage points in the low-use areas and grew further below market average as market-area service use increased. The effect was similar for beneficiaries assigned to hospital ACOs, with small differences in the low-use areas and larger differences in the high-use areas. The overall growth difference for beneficiaries assigned to physician-only ACOs (–5.6 percentage points) is greater than for beneficiaries consistently assigned to hospital ACOs (–2.3 percentage points) in

part because a much higher share of the beneficiaries in the physician-only ACOs are in high-use markets compared with beneficiaries in hospital ACOs, and ACO savings tended to be higher in markets with high starting levels of service use. These findings are similar to those in other analyses and consistent with our earlier findings that ACOs are more likely to earn shared savings in high-use markets because it is easier to reduce wasteful spending in those markets. The higher relative savings in these markets are consistent with the literature and consistent with the ACOs that CMS reports receiving shared savings. ■

beneficiaries who did not have a major change in their health status may have been less likely to have changed providers and thus less likely to have been shifted into or out of an ACO. Second, ACOs with high cost growth were more likely to leave the program (due to not generating savings), so that beneficiaries in those ACOs would not have been able to be assigned continuously to the same ACO through 2016. Third, beneficiaries assigned to the same physician for an extended period of time could have experienced better continuity of care resulting in lower spending growth. However, the data suggest that continuity of care was not a major factor explaining the differences in growth rates in Table 6-7 (p. 191). If care coordination in the ACO generated large savings by keeping people healthy, one would expect relatively low spending growth for beneficiaries who were in the ACO from 2013 to 2015, even if they were not assigned to the ACO in 2016. In contrast to this expectation, those beneficiaries who were switched out of the ACO in 2016 had very high spending growth—13.8 percentage points above the average in their market.

The most plausible explanation for these findings appears to be that changes in health status may cause both a change in physicians seen by the beneficiary (hence a change in ACO assignment) and an increase in health care spending. Because assignment and service use are related, the determination of whether MSSP ACOs produce Medicare

savings will be sensitive to the number of beneficiaries initially assigned to ACOs when their health status declines relative to the number of beneficiaries who lose assignment to an ACO when their health status declines.

Changes in health care use and changes in assignment

To better understand why assignment switching occurs, we examined the association between specific changes in health care use and assignment switching. We found that switching is partially explained by new hospitalizations, new home health use, a higher frequency of E&M visits in a SNF, and new assignment to a specialist (Table 6-9, p. 194). For example, among beneficiaries who were dropped from an existing ACO in 2016, 9 percent were assigned based on specialist use, a much higher share than among beneficiaries who were continuously assigned. However, these utilization changes did not account for most of the switchers. For example, 28 percent of the beneficiaries who were dropped from an existing ACO in 2016 had one of the selected health care changes while the rest did not. Other reasons for assignment switching could include beneficiaries seeing—by choice or by need—other clinicians, annual changes to ACOs' provider-participant taxpayer identification numbers (TINs), clinicians moving into and out of existing TINs, and ACO patient selection toward beneficiaries with lower increases in spending.

**TABLE
6-9**

Share of switchers with a specified change in use, 2016

Selected change in health care use (use occurred in 2016 but not in 2015)

2015–2016 ACO assignment	Specialist assignment	Plurality of E&M visits in SNF	Hospitalization	Home health use	Total: New use of one or more of four types of services	No change in use of selected services
Continuous assignment	2%	1%	11%	7%	16%	84%
Assigned to existing ACO in 2016	4	3	13	8	22	78
Dropped from existing ACO in 2016	9	6	14	9	28	72

Note: ACO (accountable care organization), E&M (evaluation and management), SNF (skilled nursing facility). This analysis includes only beneficiaries who, for the entire 2012 to 2016 period, (1) were alive, (2) were enrolled in fee-for-service Medicare, (3) had an E&M visit in every year, (4) resided in the same county, and (5) either were assigned to an ACO in 2015 that did not leave the MSSP or were newly assigned to an ACO in 2016 that was in the MSSP in the prior year.

Source: MedPAC analysis of beneficiary-level spending data from the CMS Chronic Conditions Data Warehouse.

Estimates of Medicare savings from the MSSP are of modest magnitude and can be biased depending on how ACO “switchers” are distributed to treatment or comparison groups

Our analyses show that estimates of Medicare savings from MSSP are of modest magnitude and sensitive to how switchers are distributed to treatment or comparison groups.

Using our cohort of FFS beneficiaries who were alive and eligible for ACO assignment from 2012 to 2016, we estimated the effect of MSSP assignment on savings between 2012 and 2016 under different definitions of ACO treatment and comparison groups (Table 6-10). These analyses did not account for shared savings or other administrative costs of MSSP. Our goal was to understand the magnitude of potential savings and how sensitive estimates of savings are to assignment switching.

Each row in Table 6-10 represents a different definition of the treatment group and the comparison group. For example, in row 1, the MSSP treatment group consists of beneficiaries who were ever assigned to an ACO from 2013 to 2016 compared with beneficiaries who were never assigned to an ACO from 2013 to 2016. Under this potentially biased definition of treatment group, the data suggested that the treatment group had Medicare spending growth that was 2.0 percentage points to 3.6 percentage points higher than the comparison group from 2012

to 2016. The range represents differences in statistical methods, namely:

- mean percentage point difference in the 2012 to 2016 spending growth for the ACO group versus the comparison group;
- mean percentage point difference in the 2012 to 2016 spending growth for the ACO group versus the comparison group after weighting beneficiary spending in the comparison group by market-level propensity scores based on ACO-assigned beneficiary characteristics in 2012 (e.g., age, sex, institutional status, disability, Medicaid eligibility, HCC score); and
- the percentage point difference in spending growth derived from a difference-in-difference regression model estimating the average differential change in spending from 2012 to 2016 (ACO group vs. comparison group) after propensity weighting and controlling for changes in beneficiary characteristics from 2012 to 2016 (e.g., institutional status, Medicaid eligibility, dialysis status, HCC score).

While the definition of who is in the treatment and comparison groups affected whether we found savings or not, the three methods of statistical testing did not materially affect our findings. In particular, our descriptive statistics were generally similar to results that incorporated

**TABLE
6-10**

Estimated MSSP effect on Medicare spending growth between 2012 and 2016

Percentage point difference in spending growth for the MSSP treatment group relative to the comparison group

MSSP treatment group	Comparison group	Mean	Propensity-weighted mean	Propensity-weighted regression results
Beneficiaries ever in an ACO	Never in an ACO	2.0	3.6	2.5
Beneficiaries in an ACO in 2013	Not in an ACO in 2013	-2.0	-1.3	-1.7
Beneficiaries in an ACO in 2016	Not in an ACO in 2016	-4.8	-4.3	-3.8

Note: MSSP (Medicare Shared Savings Program), ACO (accountable care organization). Analysis is of Medicare claims and CMS ACO assignment from 2012 to 2016. This analysis includes only beneficiaries who, for the entire 2012 to 2016 period, (1) were alive, (2) were enrolled in fee-for-service, (3) had an evaluation and management visit in every year, and (4) were in the same market in 2012 and 2016. Positive rates indicate higher MSSP spending relative to the comparison group. Negative rates indicate lower MSSP spending relative to the comparison group. Range of results indicates sensitivity analyses for different statistical comparisons and weighting. Propensity weighting is based on the likelihood of matching ACO beneficiary characteristics in a market (defined as the metropolitan statistical area within a state). All results were significant at the 95 percent confidence interval level. Savings and losses did not account for shared savings payments or other costs from administering the Medicare Shared Savings Program. For all treatment and comparison groups, pre-trend changes in spending from 2011 to 2012 were not significantly different at the 95 percent confidence interval level.

Source: MedPAC analysis of beneficiary-level spending data from the CMS Chronic Conditions Data Warehouse.

either propensity weighting or regression modeling. (A more detailed description of these methods is in online-only Appendix 6-B, available at <http://www.medpac.gov>.)

Under the first definition, we looked at the effect of ever being in an ACO compared with never being in an ACO. This comparison is similar to an MSSP study conducted by NIH researchers that found that the MSSP resulted in modest costs to the Medicare program from 2012 to 2014 (Kury et al. 2016). Similarly, we found that the treatment effect of ever being in an ACO does not show savings. In fact, ACO treatment showed higher spending growth of 2.0 percentage points to 3.6 percentage points over four years relative to the comparison group (never in an ACO). This method may be biased toward not finding savings because all assignment switchers are in the ACO treatment group and none are in the comparison group.

Next, we use an intent-to-treat model that has less potential bias, comparing beneficiaries in an ACO in 2013 with beneficiaries not in an ACO in 2013. This counterfactual method defines the treatment group as being assigned to an ACO in 2013 and thus includes some switchers, namely beneficiaries who later were switched out of the ACO after 2013. It defines the comparison group as assignable beneficiaries not assigned to an ACO

in 2013, a group that thus includes all other assignment switchers. The switchers are then more balanced in this model. This intent-to-treat model showed modest savings of 1.3 percentage points to 2.0 percentage points over four years.

This model is most similar to the Harvard study’s intent-to-treat model that also found modest savings to the Medicare program from 2009 to 2015 for ACOs that entered the program in 2012 and 2013 (McWilliams et al. 2018). That study found that savings were higher for physician-only ACOs compared with ACOs with hospitals. We also found in our model that physician-only ACOs had higher savings (1.5 percentage points to 3.0 percentage points over four years) than ACOs with hospitals (data not shown). As previously noted, some of the additional savings by physician-only ACOs may have been influenced by higher rates of assignment leavers (and by being in high-use markets).

Third, we use an as-treated model that has the potential for overestimating savings. That model compared beneficiaries in an ACO in 2016 with beneficiaries not in an ACO in 2016. This as-treated model implies the most optimistic MSSP savings of 3.8 percentage points to 4.8 percentage points relative to the comparison group

over four years. This counterfactual method is the most optimistic about savings because all beneficiaries who were dropped from ACO assignment at any point from 2013 to 2016 and remained unassigned to an ACO in 2016 are removed from the treatment group and placed in the comparison group. Further, this method also removes the effect of high-spending ACOs that left the MSSP before 2016. Therefore, this model likely overestimates program savings. Using a different as-treated model, a National Association of ACOs–sponsored study found savings to the Medicare program from 2013 to 2016 of about 1 percent (Dobson DaVanzo and Associates LLC 2018).⁸

Overall, after examining the effect on savings of allocation of switchers to a treatment or control group and examining the literature, it appears that spending growth was slightly slower for the ACO population on average across the nation. This finding means that in some markets, ACO savings may have been material (e.g., 5 percent), but in other markets, there may have been no savings. On average, our estimates of savings—which do not account for shared savings payments—have been generally modest. Given the beneficiary dynamics observed from the MSSP’s retrospective assignment and the modest level of savings, there is a need to avoid ACOs having particularly favorable or unfavorable selections of patients.

Limitations

There are several limitations to our methodology for examining savings from ACOs operating in 2013. First, we examine only beneficiaries who were alive through 2016. However, sensitivity analysis that included decedents in the model did not show materially different results. Second, our comparison group includes beneficiaries who were assigned to ACOs after 2013. To the extent that those beneficiaries’ spending was also reduced by ACOs (or that ACO care patterns “spilled over” into those patterns for non-ACO beneficiaries), our difference-in-difference estimates could underestimate the effect of ACOs. None of our analyses evaluate the effect of ACOs on new Medicare beneficiaries and beneficiaries who received care from ACO providers but were not always eligible for ACO assignment. It is also possible that ACOs could have improved their ability to manage care since 2016. In addition, CMS changed ACO rules substantially in 2019. Therefore, savings through 2016 could differ materially from savings in 2019 and future years.

Methods for assigning beneficiaries to ACOs and patient selection issues

Estimates of ACO savings by Commission staff, in the literature, and by the CMS Office of the Actuary all suggest ACOs have generated small savings before accounting for shared savings payments. However, because the efficiency gains have been small, any favorable or unfavorable distribution of patients to individual ACOs could result in unwarranted shared savings or unwarranted shared losses for an individual ACO. For example, if patients who have low spending relative to their HCC score—in the absence of ACO interventions—are assigned to the ACO, the ACO could receive unwarranted shared savings. In contrast, if the ACO is assigned patients who have greater health needs than their HCC scores suggest, the ACO could face unwarranted shared losses. The method used to assign beneficiaries to ACOs is, therefore, important.

In light of these issues, we explored how retrospective assignment allows for annual wellness visits (AWVs) to potentially result in a favorable selection of patients and how retrospective assignment could also create unfavorable selection for providers that have ill patients being switched into their ACO.

The use of wellness visits can result in ACOs gaining and maintaining assignment of low-risk beneficiaries

ACOs can use AWVs to help ensure that beneficiaries remain assigned to the ACO. The ACO has access to beneficiaries’ claims history if they are provisionally assigned to the ACO. Thus, the ACO can see whether a beneficiary has had any qualifying E&M visits that year. If not, the ACO can schedule a wellness visit with the beneficiary. Because there is no cost sharing for the AWV, the beneficiary may be willing to participate in a wellness visit. ACOs have several reasons to encourage AWVs. In addition to retaining assignment of a beneficiary (particularly those with low spending relative to their HCC score), AWVs can also help improve the ACO’s performance on the MSSP quality metrics (e.g., document counseling on smoking cessation, screening for clinical depression). AWVs also provide additional revenue to the practice and may be performed in tandem with other E&M services during the same visit. Thus, ACOs have several reasons to encourage the use of AWVs. However, the effect of AWVs on patient

outcomes is more controversial (Mehrotra and Prochazka 2015). Further, the Commission has noted the propensity of health risk assessments—an essential element of AWVs—to result in upcoding of HCC scores and has recommended that these services be excluded from risk score calculations both in FFS and in MA (Medicare Payment Advisory Commission 2016).

In 2016, the rates of AWVs for ACO beneficiaries were 33 per 100 compared with 18 per 100 for other assignment-eligible beneficiaries who were not in an ACO. In other comparisons regarding the use of AWVs, we found the following:

- The share of beneficiaries with an AWV was much higher among physician-led ACOs (40 percent) compared with ACOs that included a hospital (24 percent).
- ACOs were more likely to have the AWV scheduled in the last quarter. In 2016, 32 percent of ACO AWVs were performed in the last quarter compared with 25 percent for other assignment-eligible beneficiaries who were not in an ACO.
- AWVs were less prevalent among beneficiaries who were dropped from assignment to an ACO in 2016 (21 percent) compared with beneficiaries who were continuously assigned (38 percent).

These findings could reflect ACOs' increasing use of AWVs to maintain assignment of beneficiaries or to improve care coordination and planning. It could also reflect ACOs' attempts to achieve favorable selection by bringing patients in for wellness visits to keep the relatively healthy beneficiaries assigned to the ACO. In a survey of the 15 Next Generation ACOs, all said they encourage providers to schedule annual wellness visits and told researchers that promoting AWVs was “a unique chance to engage the large population of lower risk (e.g., non-hospitalized) Medicare beneficiaries” (NORC at the University of Chicago 2018). It is an empirical question as to whether those with wellness visits were indeed relatively low-cost patients before the wellness visit.

Annual wellness visits are associated with low spending levels in years before the visit, but have a weaker association with spending after the visit

One hypothesis is that AWVs improve beneficiaries' health in future years. An additional hypothesis is that

AWVs are indicators of past and current health needs, meaning that well people are more likely to get AWVs. To test whether AWVs have stronger associations with past spending or with future spending growth, we examined whether changes in HCC-standardized spending from 2015 to 2016 were associated with AWVs in 2015. If AWVs are a mechanism for keeping people healthy in the near term, we would expect those with AWVs in 2015 to have lower spending growth from 2015 to 2016 and relatively low risk-adjusted spending in 2016. To gain more insight into the potential financial ramifications of bringing patients in for a wellness visit at the end of the year, we also broke down AWVs by the calendar quarter in which they occurred. If AWVs keep people healthy in the near term, then (on average) a wellness visit during the first quarter of 2015 should do more to reduce 2015 spending than a wellness visit in the fourth quarter of 2015. In contrast, if AWVs result in an effective selection mechanism indicating that a person has historically been relatively healthy (even after adjusting for his or her HCC score), we should see that beneficiaries who have a wellness visit in the fourth quarter of 2015 had relatively low spending in 2015. (ACOs disproportionately brought patients in for AWVs in the fourth quarter of 2015.)

We find that AWVs have the potential to result in patient selection because they are stronger indicators of low spending at the time of the visit rather than low spending after the visit. Among ACO beneficiaries, those with a wellness visit in the first quarter of 2015 tended to have the lowest HCC-adjusted spending in 2014 (\$8,659) and the highest growth (6 percent) in HCC-adjusted spending from 2014 to 2015 (Table 6-11, p. 198). In contrast, patients with a wellness visit in the last quarter of 2015 had both relatively lower HCC-adjusted spending in 2014 (\$8,805) and lower spending growth (–5 percent) from 2014 to 2015. In addition, patients with a wellness visit in the last quarter of 2015 had the highest relative growth in HCC-adjusted spending from 2015 to 2016 (12 percent), although risk-adjusted spending was still the lowest (\$9,361). Taken together, these findings suggest that because beneficiaries with lower spending are more likely to receive AWVs, these services can result in favorable patient selection for ACOs in the MSSP. This consequence will be especially important in 2019 when the MSSP moves toward using HCC-adjusted regional benchmarks rather than basing benchmarks purely on historical spending. Notably, the timing of a wellness visit was a strong predictor of spending before the wellness visit for the ACO and non-ACO groups. While the spending

**TABLE
6-11**

Annual wellness visits have stronger associations with past spending than with future spending growth

Beneficiary category	Number of beneficiaries in category	HCC-adjusted spending (average per beneficiary)			HCC-adjusted spending growth	
		2014	2015	2016	2014–2015	2015–2016
Assigned to ACO						
No annual wellness visit in 2015	3,476,301	\$9,854	\$10,357	\$10,161	5%	–2%
Annual wellness visit in first quarter 2015	289,528	8,659	9,186	9,615	6	5
Annual wellness visit in last quarter 2015	384,250	8,805	8,380	9,361	–5	12
Not assigned to ACO						
No annual wellness visit in 2015	12,292,960	9,728	10,272	10,171	6	–1
Annual wellness visit in first quarter 2015	584,379	8,530	9,429	9,627	11	2
Annual wellness visit in last quarter 2015	698,656	8,628	8,327	9,377	–3	13

Note: HCC (hierarchical condition category), ACO (accountable care organization). Analysis of Medicare claims and CMS ACO assignment from 2012 to 2016. This analysis includes only beneficiaries who (1) were alive and enrolled in fee-for-service from 2012 to 2016, (2) had an evaluation and management visit in 2015, and (3) were in a market with ACOs. The table omits the beneficiaries with a wellness visit in the second or third quarter of the year.

Source: MedPAC analysis of beneficiary-level spending data from the CMS Chronic Conditions Data Warehouse.

differentials on beneficiaries with versus without visits were large, the ACO/non-ACO differentials were smaller.

The risk of unfavorable selection under retrospective assignment

ACOs also face a risk of unfavorable selection if patients who develop new health care needs are switched to the ACO to see ACO physicians. For example, if a patient who has developed a costly illness sees an ACO physician at the end of 2015 and the patient becomes assigned to that physician, the ACO is responsible for all of the beneficiary’s spending during the year, even for the part of the year that occurred before the beneficiary visited the ACO physician. This consequence makes retrospective assignment risky for ACO physicians who tend to attract the sickest patients. In contrast, under prospective assignment, the ACO would not be responsible for the cost and quality of care of the patient until the year after the patient’s initial visit with one of the ACO’s physicians.

Policy implications of assignment methods

Our best estimate is that the MSSP generated some modest savings, 1 percentage points to 2 percentage points by

2016 before shared savings payments. Therefore, any opportunities for ACOs to increase their shared savings payments through patient selection could put net program savings at risk. An ACO could also be at risk and face adverse selection if patients with newly acquired expensive illnesses are switched into the ACO.

ACOs’ use of AWWs could result in favorable selection in a two-step process. First, they could identify patients who have had little or no health care spending during the year. Second, they could target those patients for AWWs, offering them incentives to come in for a visit at the end of the year. For providers with retrospective assignment, this strategy has the potential to (directly or indirectly) generate favorable selection. For those with prospective assignment, the potential for selection may be less because ACOs are held responsible for the next year’s spending, which is less predictable than current year spending that is adjusted for HCC scores based on diagnoses from the prior year. The potential benefits for the ACO are enhanced with the introduction of benchmarks based on regional spending rather than on beneficiaries’ individual spending history. Even if a beneficiary has been healthy and his or her history shows little spending over the

years, the ACO's spending performance will be measured against a benchmark based in part on regional spending and its beneficiary's HCC score. This change creates more profit potential than if benchmarks were set based on the low-cost beneficiary's prior years' spending. In sum, the combination of retrospective assignment, use of regional benchmarks, and AWWs creates opportunities for patient selection.

To protect the taxpayer and limit the potential for patient selection, CMS could use a system of prospective assignment for all MSSP ACOs, as is done in the Next Generation model.⁹ ACOs could still use AWWs to manage care, meet quality metrics, and fully document patients' diagnoses. They would also still benefit from any reductions in future medical spending due to current year AWWs. While the potential for promoting wellness would not be reduced, the potential for patient selection would.

Prospective assignment may also better align provider incentives with patient satisfaction compared with retrospective assignment. For example, under retrospective

assignment, if a patient becomes dissatisfied with care given by an ACO physician in 2015 and sees a new physician in 2016, the ACO is not accountable for 2016 spending. If beneficiaries develop some expensive care needs and are dropped from the ACO, the ACO will not be harmed. In contrast, under prospective assignment, if a beneficiary becomes dissatisfied with his or her care and changes physicians, the ACO remains accountable for the beneficiary's care, giving ACO physicians extra incentives to maintain the loyalty of patients, especially as they become ill.

Prospective assignment can also protect ACOs against adverse selection if severely ill patients are assigned to or are switched to another ACO. The fundamental principle is that under retrospective assignment, the ACO can be responsible for the cost of care that occurs before and after ACO physicians see the patient during the current year. In contrast, under prospective assignment, the ACO is responsible only for the cost of care that occurs in the year after an ACO physician sees the patient. ■

Endnotes

- 1 Beneficiaries now have the option of designating their primary clinician, which will govern their ACO assignment. Thus far, few beneficiaries have done so.
- 2 Beneficiaries do not choose to switch into or out of an ACO. They are assigned by CMS to an ACO or not based on their claims. Thus, when we say a beneficiary was switched out of an ACO, we mean that CMS stopped assigning the beneficiary to the ACO. The assignment algorithm is complicated and has changed over the years. It is summarized in online-only Appendix 6-A, available at <http://www.medpac.gov>.
- 3 We define our markets as metropolitan statistical areas (MSAs) except when an MSA crosses state lines. In that case, we divide each multistate MSA into separate markets by state.
- 4 Decedents were excluded from our analysis, which was not true for the other studies. In separate work using the same analytic approach, we did not find savings for ACOs relative to non-ACOs for decedents.
- 5 The exception is Track 3 MSSP ACOs, which existed only in 2016.
- 6 We compared beneficiaries assigned to an ACO in 2016 with those not assigned to an ACO in 2016 to demonstrate an approach that would likely be the most optimistic estimate of MSSP savings through 2016.
- 7 For example, if in a market the average growth rate was 35 percent for our constant cohort of beneficiaries as they aged from 2012 to 2016 and the growth rate for beneficiaries in physician-only ACOs was 30 percent, the difference in growth rates would be 5 percentage points.
- 8 That study compared beneficiaries assigned to ACOs with those assignable but not assigned to ACOs in the same market in any year. It also used HCCs to risk adjust spending before arriving at their estimate.
- 9 Such a system could also allow the beneficiary to designate a primary care clinician. If that clinician were in an ACO, the beneficiary would then be assigned to that ACO regardless of claims history. This option already exists but thus far is seldom used.

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