

Healthcare Systems and Services Practice

The math of ACOs

Factors shaping the financial performance of physician- and hospital-led organizations under total cost of care payment models

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Introduction

Broad consensus has long existed among public- and private-sector leaders in US health-care that improvements in healthcare affordability will require, among other changes, a shift away from fee-for-service (FFS) payments to alternative payment models that reward quality and efficiency. The alternative payment model that has gained broadest adoption over the past ten years is the accountable care organization (ACO), in which physicians and/or hospitals assume responsibility for the total cost of care for a population of patients.

Launched by the Centers for Medicare & Medicaid Services (CMS) Innovation Center in 2012, Pioneer ACO was the first such model design to generate savings for Medicare. In this incarnation, Medicare set a benchmark for total cost of care per attributed ACO beneficiary: If total cost of care was kept below the benchmark, ACOs were eligible to share in the implied savings, as long as they also met established targets for quality of care. If total cost of care exceeded the benchmark, ACOs were required to repay the government for a portion of total cost of care above the benchmark.

Payment models similar to the one adopted by Pioneer ACOs also have been extended to other Medicare ACO programs, with important technical differences in estimates for savings and rules for the distribution of savings or losses as well as some models offering gain sharing without potential for penalties for costs exceeding the benchmark. State Medicaid programs as well as private payers (across Commercial, Medicare Advantage, and Medicaid Managed Care) also have adopted ACO-like models with similar goals and payment model structures. Of the roughly 33 million lives covered by an ACO in 2018, more than 50 percent were commercially insured and approximately 10 percent were Medicaid lives.¹

On the whole, ACOs in the Medicare Shared Savings Program (MSSP) have delivered high-quality care, with an average composite score of 93.4 percent for quality metrics. However, cost savings achieved by the program have been limited: ACOs that entered MSSP during the period from January 1, 2012 to December 31, 2014, were estimated to have reduced cumulative Medicare FFS spending by \$704M by 2015; after bonuses were accounted for, net savings to the Medicare program were estimated to be \$144M.² Put another way, in aggregate, savings from Medicare ACOs in 2015 represented only 0.02 percent of total Medicare spending. The savings achieved were largely concentrated among physician-led ACOs (rather than hospital-led ACOs). In fact, after accounting for bonuses, hospital-led ACOs actually had *higher* total Medicare spending by \$112M on average over three years.³

While savings from MSSP have been relatively limited, in aggregate, numerous examples exist of ACOs that have achieved meaningful savings—in some cases in excess of 5 percent of total cost of care—with significant rewards to both themselves as well as sponsoring payers (for example, Millennium, Palm Beach, BCBS-MA AQC).^{4,5,6} The wide disparity of performance among ACOs (and across Medicare, Medicaid, and Commercial ACO programs) raises the question of whether certain provider organizations are better suited than others to succeed under total cost of care arrangements, and whether success is dictated more by ACO model design or by structural characteristics of participating providers.

In the pages that follow, we examine these questions in two ways. First, we analyze “the math of ACOs” by isolating four factors that contribute to overall ACO profitability: bonus payments, “demand destruction,” market share gains, and operating expenses. Following these factors, we illustrate the math of

¹ *Health Affairs* Blog, “Recent progress in the value journey: Growth of ACOs and value-based payment models in 2018,” blog entry by Muhlestein D et al., August 14, 2018, healthaffairs.org.

² McWilliams JM et al., “Medicare spending after 3 years of the Medicare Shared Savings Program,” *NEJM*, 2018, Volume 379, pp. 1139–49, nejm.org.

³ McWilliams JM et al., “Medicare spending after 3 years of the Medicare Shared Savings Program,” *NEJM*, 2018, Volume 379, pp. 1139–49, nejm.org.

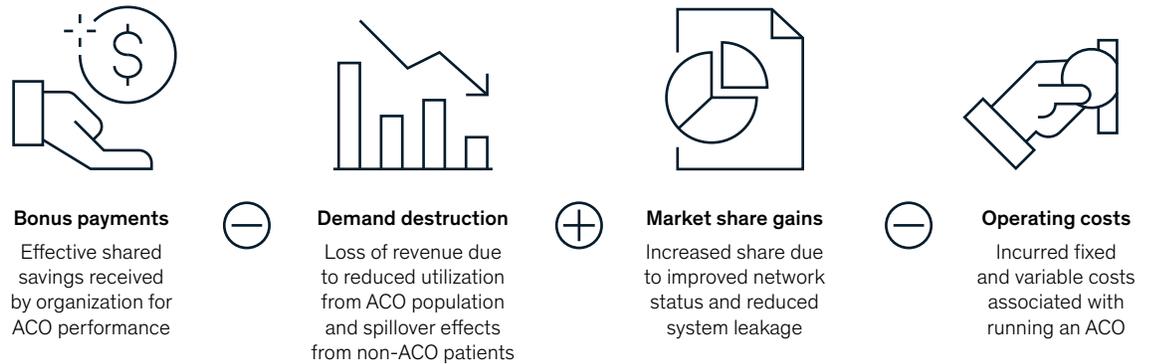
⁴ “Number one ranking MSSP ACO wins 2019 healthcare innovation innovator award,” *Business Wire*, April 10, 2019, businesswire.com.

⁵ “Public reporting,” Palm Beach accountable care organization, 2020, pbaco.org.

⁶ Song Z et al., “Health care spending, utilization, and quality 8 years into global payment,” *NEJM*, 2019, Volume 381, pp. 252–63, nejm.org.

Exhibit 1

The equation for the math of ACOs.



ACO, accountable care organization.

ACOs through modeling of the performance of five different archetypes: physician-led ACOs; hospital-led ACOs with low ACO penetration and low leakage reduction; hospital-led ACOs with high ACO penetration; hospital-led ACOs with high leakage reduction; and hospital-led ACOs with high penetration and leakage reduction.

The Math of ACOs

In the pages that follow, we break down “the math of ACOs” into several key parameters, each of which hospital and physician group leaders could consider evaluating when deciding whether to participate in an ACO arrangement with one or more payers. Specifically, we measure the total economic value to ACO-participating providers as the sum of four factors: bonus payments, less “demand destruction,” plus market share gains, less operating costs for the ACO (Exhibit 1).

In the discussion that follows, we examine each of these factors and understand their importance to the overall profitability of ACOs, using both academic research as well as McKinsey’s experience advising and supporting payers and providers participating in ACO models.

1. BONUS PAYMENTS

The premise of ACOs rests on the opportunity for payers and participating providers to share in cost savings arising from curbing unnecessary utilization and more efficient population health management, thus aligning incentives to control total cost of care. Because ACOs are designed to reduce utilization, the bonus—or share of estimated savings received by an ACO—is one factor that significantly influences ACO profitability and has garnered the greatest attention both in academic research and in private sector negotiations and deliberations over ACO participation. Bonus payments made to ACOs are themselves based on several key design elements:

- (a) The **baseline and benchmark** for total costs, against which savings are estimated⁷;
- (b) The **shared savings rate and minimum savings/loss rates**;
- (c) **Risk corridors**, based on caps on gains/losses and/or “haircuts” to benchmarks; and,
- (d) **Frequency of rebasing**, with implications for benchmark and shared savings.

⁷ The gap between total cost of care and a pre-set benchmark is commonly referred to as estimated savings. This may not be the best method for estimating savings (that is, a true representation of what total cost of care would have been if the provider organization were not an ACO), but we will use this terminology throughout this article following common practice.

1a. Baseline and benchmark

Most ACO models are grounded in a historical **baseline** for total cost of care, typically on the population attributed to providers participating in the ACO. Most ACO models apply an annual **trend rate** to the historical baseline, in order to develop a **benchmark** for total cost of care for the performance period. This benchmark is then used as the point of reference to which actual costs are compared for purposes of determining the bonus to be paid.

Historical baselines may be based either on one year or averaged over multiple years in order to mitigate the potential for a single-year fluctuation in total cost of care that could create an artificially high or low point of comparison in the future. Trend factors may be based on historically observed growth rates in per capita costs, or forward-looking projections, which may depart from historical trends due to changes in policy, fee schedules, or anticipated differences between past and future population health. Trend factors may be based on national projections, more market-specific projections, or even ACO-specific projections. For these and other reasons, a pre-determined benchmark may not be a good estimate of what total cost of care would have been in the absence of the ACO. As a result, estimated savings, and hence bonuses, may not reflect the true savings generated by ACOs if compared to a rigorous assessment of what otherwise would have occurred.

Recent research suggests that an ACO's benchmark should be set using trend data from providers in similar geographic areas and/or with similar populations instead of using a national market average trend factor.⁸ It has been observed in Medicare (and other) populations that regions (and therefore possibly ACOs) that start at a lower-than-average cost base tend to have a higher-than-average growth trend. For example, Medicare FFS spending in low-cost regions grew at a rate 1.2

percentage points faster than the national average (2.8 percent and 1.6 percent from 2013 to 2017 compound annual growth rate, respectively). This finding is particularly relevant in low-cost rural communities, where healthcare spending grows faster than the national average.⁹ Based on this research, some ACO models, such as MSSP and the Next Generation Medicare ACO model, have developed benchmarks based on blending ACO-specific baselines with market-wide baselines. This approach is intended to account for the differences in "status quo" trend, which sponsoring payers may project in the absence of ACO arrangements or associated improvements in care patterns. Some model architects have advocated for this provider-market blended approach to benchmark development because they believe such an approach balances the need to reward providers who improve their own performance with a principle tenet of this model: That ACOs within a market should be held accountable to the same targets (at least in the long term).

1b. Shared savings rate (and minimum savings/loss rates)

The shared savings rate is the percentage of any estimated savings (compared with benchmark) that is paid to the ACO, subject to meeting any requirements for quality performance. For example, an ACO with a savings rate of 50 percent that outperforms its benchmark by 3 percent would keep 1.5 percent of benchmark spend. Under the array of Medicare ACO models, the shared savings rate percentage ranges anywhere from 40 percent to 100 percent.¹⁰

In some ACO models, particularly one-sided gain sharing models that do not introduce downside risk, payers impose a minimum savings rate (MSR), which is the savings threshold for an ACO to receive a payout, typically 2 percent, but can be higher or lower.¹¹ For example, assume ACO Alpha has a savings rate

⁸ Rose S, Zaslavsky A, and McWilliams JM. "Variation in accountable care organization spending and sensitivity to risk adjustment: Implications for benchmarking," *Health Affairs*, 2016 Volume 35, Number 3, pp. 440–8.

⁹ McKinsey analysis completed using data from 2019 Medicare Trustees Report, CMS public use files, and US Census Bureau.

¹⁰ 2018 methodology handbook; CMS MSSP final share rate data from 2018; MSSP handbook; Next Generation ACO model handbook.

¹¹ CMS MSSP final share rate data from 2018.

of 60 percent and MSR of 1.5 percent. If Alpha overperforms the benchmark by 1 percent, there would be no bonus payout, because the total savings do not meet or exceed the MSR. If, however, Alpha overperforms the benchmark by 3 percent, Alpha would receive a bonus of 1.8 percent of benchmark (60 percent of 3 percent). An MSR is common in one-sided risk agreements to protect the payer from paying out the ACO if modest savings are a result of random variations. ACOs in two-sided risk arrangements may often choose whether to have an MSR.

Both factors impact the payout an ACO receives. Between 2012 and 2018, average earned shared savings for MSSP ACOs were between \$1.0M and \$1.6M per ACO (between \$10 and \$100 per beneficiary).¹² However, while nearly two out of three MSSP ACOs in 2018 were under benchmark, only about half of them (37 percent of all MSSP ACOs) received a payout due to the MSR.¹³

1c. Risk corridors

In certain arrangements, payers include clauses that limit an ACO's gains or losses to protect against extreme situations. Caps depend on the risk-sharing agreement (for example, one-sided or two-sided) as well as the shared savings/loss rate. For example, MSSP Track 1 ACOs (one-sided risk sharing) cap shared savings at the ACO's share of 10 percent variance to the benchmark, while Track 3 ACOs (two-sided risk sharing) cap shared savings at the ACO's share of 20 percent variance to the benchmark and cap shared losses at 15 percent variance to the benchmark.¹⁴ In contrast with these Medicare models, many Commercial and Medicaid ACO models have applied narrower risk corridors, with common ranges of 3 to 5 percent. In our experience, payers have elected to offer narrower risk corridors. Their choice is based on their desire to mitigate risk as well as the interest of some payers (and state Medicaid

programs) to share in extraordinary savings that may be attributable in part to policy changes or other interventions undertaken by the payers themselves, whether in coordination with ACOs or independent of their efforts.

Payers also may vary the level of shared savings (and/or risk), between that which applies to the first dollar of savings (versus benchmark) compared with more significant savings. For example, by applying a 1 percent adjustment or "haircut" to the benchmark, a payer might keep 100 percent of the first 1 percent of savings and share any incremental savings with the ACO at a negotiated shared savings rate. Depending on what higher shared savings rate may be offered in trade for the "haircut," such a structure has the potential to increase the incentive for ACOs to significantly outperform the benchmark. For example, an ACO that beats the benchmark by 4 percentage points and earns 100 percent of savings after 1 percentage point would net 75 percent of total estimated savings. However, under the same risk model, if the ACO were to beat the benchmark by 2 percentage points, they would only earn 50 percent of total savings. Such a structure could therefore be either more favorable or less favorable than 60 percent shared savings without a "haircut," depending on the ACO's anticipated performance.

1d. Frequency of rebasing

In most ACO models (including those adopted by CMS for the Medicare FFS program), the ACO's benchmark is reset for each performance period based (at least in part) on the ACO's performance in the immediate prior year. This approach is commonly referred to as "rebasing." The main criticism of this approach toward ACO model design—which is also evident in capitation rate setting for Managed Care Organizations—is that ACOs become "victims of their own success": Improvements made by the ACO in one year lead

¹² Centers for Medicare & Medicaid Services Medicare Shared Savings Program, "Shared savings program fast facts—As of July 1, 2019," CMS, 2019, cms.gov.

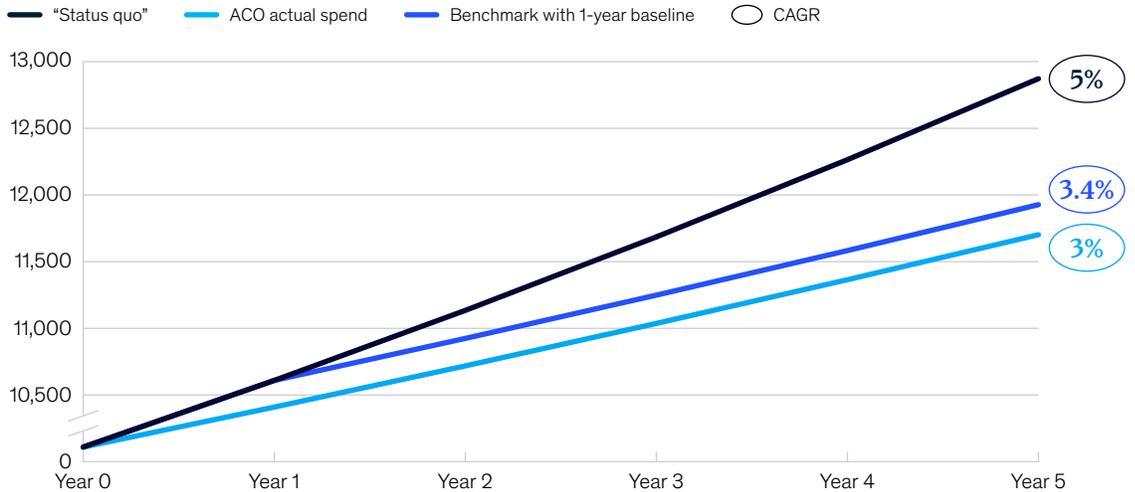
¹³ Centers for Medicare & Medicaid Services, "2018 Shared Savings Program (SSP) accountable care organizations (ACO) PUF," CMS, updated September 26, 2019, data.cms.gov.

¹⁴ Centers for Medicare & Medicaid Services Medicare Shared Savings Program, "Shared savings and losses and assignment methodology," CMS, February 2019, cms.gov.

Exhibit 2

The per-member per-year cost over 5 years after becoming an ACO.

\$M



ACO, accountable care organization; CAGR, compound annual growth rate.

to a benchmark that is even harder to beat in the following year. The corollary is also true: An ACO with “excessive” costs in Year 1 may be setting themselves up for significant shared savings in Year 2 simply by bringing their performance back to “normal” levels.

Even in situations where ACOs show steady improvements in management of total cost of care over several years, the “ratchet” effect of rebasing can have significant implications for the share of estimated savings that flow to the ACO. Exhibit 2 illustrates the shared savings that would be captured by an ACO, if it were to mitigate trend by 2 percentage points consistently for 5 years (assumes linear growth), under a model that provides 50 percent shared savings against a benchmark that is set with annual rebasing. In this scenario, although the ACO would earn 50 percent of the savings estimated in any one year (against benchmark), the ACO would derive only 16 percent of total savings achieved relative to a “status quo” trend.

Some ACO model designs (including MSSP) have mitigated this “ratchet” effect, to some extent, by using **multi-year baselines**, whereby the benchmark for a given performance year is based not on the ACO’s base-

line performance in the immediate prior year but over multiple prior years. This approach smooths out the effect of one-year fluctuations in performance on the benchmark for subsequent years; by implication, improvements made by an ACO in Year 1 and sustained in Year 2 create shared savings in both years. Under a three-year baseline, weighted toward the most recent year 60/30/10 percent (as applies to new contracts under the MSSP), the ACO in Exhibit 2 would capture 22 percent of total estimated savings over 5 years. If the model were instead to adopt an evenly weighted three-year baseline, that same ACO would capture 28 percent over 5 years.

In select cases, particularly in the Commercial market, payers and ACOs have agreed to **multi-year prospective benchmarks**. Under this approach, the benchmark for performance Years 1 to 5 (for example) are set prospectively in Year 0; the benchmarks for Years 2 and 3, for example, are not impacted by the ACO’s performance in Year 1. If this approach were to be applied to the ACO depicted in Exhibit 2, they would earn fully 50 percent of the total savings, assuming that the prospectively established 5-year benchmark was set at the “status quo” trend line. While prospective

multi-year benchmarks may be more favorable to ACOs, they also increase the sensitivity of ACO performance to both the original baseline as well as the reasonableness of the prospectively applied trend rate.

Key takeaways

While in many cases healthcare organizations are highly focused on the percent of shared savings they will receive (shared savings rate), in our experience, the financial sustainability of ACO arrangements may be equally or more greatly affected by several other design parameters outlined here, among them: the inclusion of an MSR or a “haircut” to benchmark, either of which may dampen the incentive to perform; benchmark definitions including the use of provider-specific, market-specific, and/or national baseline and trend factors; and the frequency of rebasing, as implied by the use of a single-year or multi-year baseline, or the adoption of prospectively determined multi-year benchmarks.

2. DEMAND DESTRUCTION

Although shared savings arrangements are meant to align providers’ incentives with curbing unnecessary utilization, the calculation of bonus payments based on avoided claims costs (as described in Section 1) does not account for the foregone provider revenue (and margins) attached to reductions in patient volume. The economic impact of this reduction in patient volume, sometimes referred to as “demand destruction,” is described in this section, which we address in two parts:

- (a) **Foregone economic contribution** based on reduced utilization in the ACO population; and,
- (b) **Spillover effects** from reduced utilization in the non-ACO population, based on clinical and operational changes that “spillover” from the ACO population to the non-ACO population.

2a. Foregone economic contribution

Claims paid to hospital systems for inpatient, outpatient, and post-acute facility utilization typically comprise 40 to 70 percent of total cost of care, with hospital systems that own a greater share of outpatient diagnostic lab

and/or imaging and/or skilled nursing beds falling at the upper end of this range. These same categories of facility utilization may comprise 60 to 80 percent of reductions in utilization arising from improvements in population health management by an ACO. Given the high fixed costs (and correspondingly high gross margins) associated with inpatient, outpatient, and post-acute facilities, foregone facility volume could come at an opportunity cost of 30 to 70 percent of foregone revenue—that opportunity cost being the gross contribution margin associated with incremental patient volume, calculated as revenue less variable costs: Commercially insured ACO populations are more likely to fall into the upper end of this range and Medicaid populations into the lower end. This is the reason savings rates tend to be higher in the Commercial market, to offset the larger (negative) financial impact of “demand destruction.”

For example, a hospital-led ACO that mitigates total cost of care by 3 percent (or \$300 based on a benchmark of \$10,000 per capita) might forego \$180 to \$240 of revenue per patient (assuming 60 to 80 percent of savings derived from hospital services), which may represent \$90 to \$120 in foregone economic contribution, assuming 50 percent gross margins. As this example shows, this foregone economic contribution may represent a significant offset to any bonus paid under shared savings arrangements, unless the shared savings percentage is significantly greater than the gross margin percentage for foregone patient revenue.

For some hospitals that are capacity constrained, the lost patient volume may be replaced (that is, backfilled) with additional patient volume that may be more or less profitable depending on the payer (for example, an ACO that backfills with more profitable Commercial patients). However, the vast majority of hospitals are not traditionally capacity constrained and therefore must look to other methods (for example, growing market share) to be financially sustainable.

In contrast, physician-led ACOs have comparatively little need to consider the financial im-

Exhibit 3

The spillover effects in non-ACO populations.

Population studied	Impact of spillover effects	Source
Explored effect of Medicare HMO penetration on healthcare spending of Medicare FFS enrollees between 1994–2001	0.7–0.8% reduction in FFS spend associated with every 1% increase in Medicare HMO enrollment	Chernew M et al., “Managed care and medical expenditures of Medicare beneficiaries,” <i>J Health Econ</i> , 2008
Explored effect of BCBS of Massachusetts’ Alternative Quality Contract (AQC)—an early commercial ACO initiative on beneficiaries not covered by AQC (3 years before and 2 years after AQC entry)	3.4% reduction in spend (~\$400 annually) per FFS beneficiary in Year 2; no significant decrease in spending in Year 1	McWilliams JM et al., “Changes in health care spending and quality for Medicare beneficiaries associated with a commercial ACO contract,” <i>JAMA</i> , 2013
Explored effect of Medicare Advantage program on the traditional Medicare program nationwide, from 1997–2009	While greater managed care penetration is not associated with fewer hospitalizations, it is associated with lower costs and shorter stays per hospitalization. These spillovers are substantial.	Baicker K et al., “The spillover effects of Medicare managed care: Medicare Advantage and hospital utilization,” <i>J Health Econ</i> , 2013

ACO, accountable care organization; FFS, fee for service; HMO, health maintenance organization.

pact of “demand destruction,” given that they never benefitted from hospitalizations and thus do not lose profits from forgone care. Furthermore, primary care practices may actually experience an increase, rather than decrease, in patient revenue, based on more effective population health management. Even for multi-specialty physician practices that sponsor ACO formation, any reductions in patient volume arising from the ACO may have only modest impact on practice profitability due to narrow contribution margins attached to incremental patient volume. Physician-led ACOs may need to be concerned with “demand destruction” only to the extent that a disproportionate share of savings is derived from reductions in practice-owned diagnostics or other high-margin services; however, the savings derived from such sources are typically smaller than reductions in utilization for emergency department, inpatient, and post-acute facility utilization.

2b. Spillover effects

Though ACOs are not explicitly incentivized to reduce total cost of care of their non-ACO populations (including FFS), organizations often see increased efficiency across their full patient population after becoming an ACO. For example, research over the last decade

has found reductions in spend for non-ACO lives between 1 and 3 percent (Exhibit 3).

The impact of spillover effects on an ACO’s profitability depends on the proportion of ACO and non-ACO lives that comprise a provider’s patient panel. Further, impact also depends on the ACO’s ability to implement differentiated processes for ACO and non-ACO lives to limit the spillover of the efficiencies. Although conventional wisdom implies that physicians will not discriminate their clinical practice patterns based on the type of payer (or payment), nonetheless many examples exist of hospitals and other providers with the ability to differentiate processes based on payer or payment type. For example, many hospitals deploy greater resources to discharge planning or initiate the process earlier for patients reimbursed under a Diagnosis Related Group (case rate) than for those reimbursed on a per diem or percent of charges model. Moreover, ACOs and other risk-bearing entities routinely direct care management activities disproportionately or exclusively toward patients for whom they have greater financial accountability for quality and/or efficiency. For physician-led ACOs, differentiating resource deployment between ACO- and non-ACO populations may be nec-

essary to achieve a return on investment for new care management or other population health management activities. For hospital sponsors of ACOs that continue to derive the majority of their revenue from FFS populations outside the ACO, differentiating population health management efforts across ACO and FFS populations are of paramount importance to overall financial sustainability. To the extent that hospital-led ACOs are unable to do so, they may find total cost of care financial arrangements to be financially sustainable only if extended to the substantial majority of their patient populations in order to reduce the severity of any spillover effects.

Key takeaways

The adverse impact of “demand destruction” is what most distinguishes the math of hospital-led ACOs from that of physician-led ACOs. The structure of ACO-sponsoring hospitals—whether they own post-acute assets, for example—further shapes the severity of demand destruction, which then provides a point of reference for determining what shared savings percentage may be necessary to overcome the impact of demand destruction. Though in the long term, hospitals may be able to right size capacity, in the near term when deciding to become an ACO, there is often limited ability to alter the fixed-cost base. Finally, the extent of “spillover effects” from the ACO to the non-ACO population further impacts the financial sustainability of hospital-led ACOs. Hospital-led ACOs can seek to minimize the impact through 1) differentiating processes between the two populations, and/or 2) transitioning the substantial majority of their patient population into ACO arrangements.

3. MARKET SHARE GAINS

Providers can further improve profitability through market share gains, specifically:

- (a) **Reduced system leakage** through improved alignment of referring physicians across both ACO and non-ACO patients; and,
- (b) **Improved network status** as an ACO.

3a. Reduced system leakage

ACOs can grow market share by coordinating patients within the system (that is, reduce leakage) to better manage total cost of care and quality. This coordination is often accomplished by improving the provider’s alignment with the referring physician; for example, ACOs can establish a comprehensive governance structure and process around network integrity, standardize the referral process between physicians and practices, and improve physician relationships within, and with awareness of, the network. Furthermore, ACOs can develop a process to ensure that a patient schedules follow-up appointments before leaving the physician’s office, optimizing the scheduling system and call center.

Stark Laws (anti-kickback regulations) have historically prevented systems from giving physicians financial incentives to reduce leakage. While maintaining high-quality standards, ACOs are given a waiver to this law and therefore are allowed to pursue initiatives that improve network integrity to better coordinate care for patients. In our experience, hospitals generally experience 30 to 50 percent leakage (Exhibit 4), but ACOs can improve leakage by 10 to 30 percent.

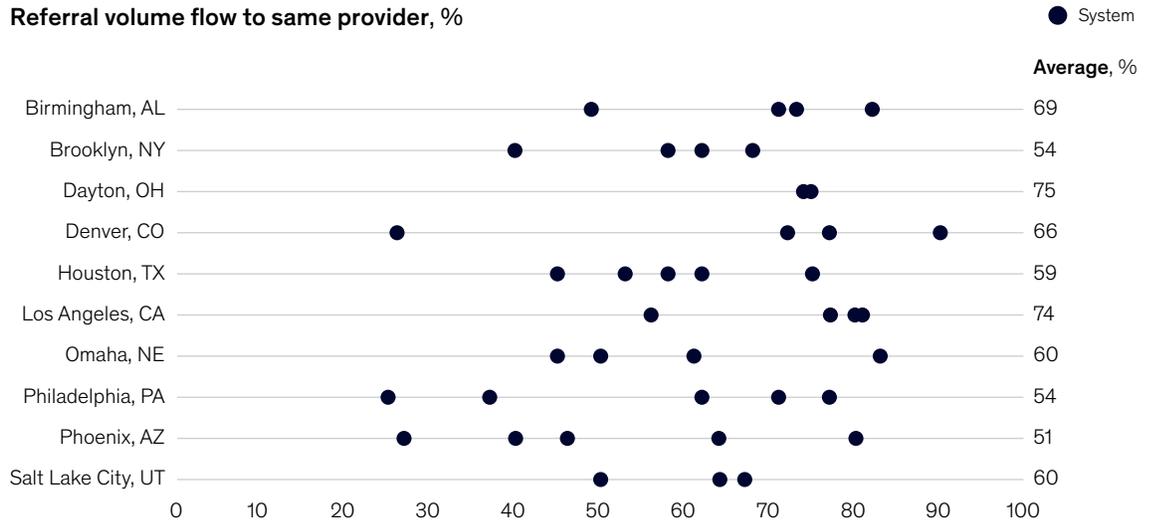
3b. Improved network status

In some instances for Commercial payers, an ACO may receive preferential status within a network by entering into a total cost of care arrangement with a payer. As a result, the ACO would see greater utilization, which will improve profitability. For example, in 2012,

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Exhibit 4

The network integrity across ten US metro areas.



Note: In this analysis, network integrity captures what portion of a specialist's referrals are to his/her affiliated facility, either for inpatient or outpatient procedures (eg, cardiac surgery in hospital, endoscopy in ambulatory surgical center). The referral patterns between specialists and hospitals in the ten US metro areas were identified through analyzing over 3.6 billion submitted Medicare and Commercial claims from 2017 through Q1 2019, representing 35% of US professional and facility claims.

the Cooley Dickinson Hospital (CDH) and Cooley Dickinson Physician Hospital Organization, a health system in western Massachusetts with 66 primary care providers and 160 specialists, joined Blue Cross Blue Shield of Massachusetts' (BCBSMA) Alternative Quality Contract (AQC), which established a per-patient global budget to cover all services and expenses for its Commercial population. As a result of joining the AQC, reducing the prices charged for services, and providing high quality of care, CDH was "designated as a high-value option in the Western Mass. Region," which meant BCBSMA members with certain plans "[paid] less out-of-pocket when they [sought] care" at CDH.¹⁵ Other payers have also established similar mutually beneficial offerings to providers who assume more accountability for care.^{16,17} An ACO can benefit from these arrangements up until most or all other provider systems in the same market join.

Key takeaways

These factors to improve market share (at lower cost and better quality) can help an ACO compensate for any lost profits from "demand destruction" (foregone profits and spillover effects) and increased operating costs. The opportunity from this factor, which requires initiatives that focus on reducing leakage, can be the difference between a net-neutral hospital-led ACO and a significantly profitable ACO. An example initiative would be performance management systems that analyze physician referral patterns.

4. OPERATING COSTS

Finally, profitability is impacted by operating costs or any additional expenses associated with running an ACO. These costs generally are lower for physician-led ACOs than for hospital-led ACOs (and also depend on buy-versus-build decisions). In our experience, operating costs to run an ACO vary widely depending on the provider's operating

¹⁵ McPhee J, "Large health system in western Massachusetts becomes the latest to join the alternative quality contract," Blue Cross Blue Shield of Massachusetts, October 27, 2011, newsroom.bluecrossma.com.

¹⁶ Health Affairs Blog, "New provider-sponsored health plans: Joint ventures are now the preferred strategy," blog entry by Baumgarten A and Hempstead K, February 23, 2018, healthaffairs.org.

¹⁷ Slitt M, "Cigna extends collaborative care to 75,000 Floridians through new arrangement with five medical groups," Cigna, February 9, 2016, cigna.com.

model, cost structure (for example, existing personnel, IT capabilities), and ACO patient population (for example, number and percent of ACO lives). However, we will focus on three specific types of costs:

- (a) **Care management costs**, often variable, or a marginal expense for every life;
- (b) **Data and analytics operating costs**, which can vary widely depending on whether the ACO builds or buys this capability; and
- (c) **Additional administrative costs**, which are fixed or independent of the number of lives.

4a. Care management costs

In our experience, care management costs to operate an ACO range from 0.5 to 2.0 percent of total cost of care for a given ACO population. These care management costs include ensuring patients with chronic conditions are continuously managing those conditions and coordinating with physician teams to improve efficacy and efficiency of care. A core lever of success involves reducing use of unnecessary care. ACOs that spend closer to 2 percent and/or those whose efforts focus on expanding care coordination for high-risk patients struggle to achieve enough economic contribution to break even. This is because care coordination (devoting more resources to testing and treating patients with chronic disease) often does not have a positive return on investment.¹⁸ ACOs that do this effectively and ultimately spend less on care management (around 0.5 percent of the total cost of care) tend to create value primarily through curbing unnecessary utilization and steering patients toward more efficient facilities rather than managing chronic conditions. This value creation is particularly true for Commercial ACO contracts, where there is greater price variation across providers compared with Medicare and Medicaid contracts, where pricing is standardized.

4b. Data and analytics operating costs

Data and analytics operating costs are critical to supporting ACO effectiveness. For example, high-performing ACOs prioritize data interoperability across physicians and hospitals and constantly analyze electronic health records and claims data to identify opportunities to better manage patient care and reduce system leakage. ACOs can either build or license data and analytics tools, a decision that often depends on the number of ACO lives. In our experience, an ACO that decides to build its own data and analytics solutions in-house will on average invest around \$24M for upfront development, amortized over 8 years for \$3M per year, plus \$6M in annual costs (for example, using data scientists and analysts to generate insights from the data), for a total of \$9M per year. Alternatively, ACOs can license analytics software on a per-patient basis, typically costing 0.5 to 1.5 percent of the total cost of care. Thus, we find the breakeven point at around 100,000 covered ACO lives; therefore, it often makes financial sense for ACOs with more than 100,000 lives to build in-house.

4c. Additional administrative costs

Organizations must also invest in personnel to operate an ACO, typically including an executive director, head of real estate, head of care management, and lawyers and actuaries. The ACO leadership team's responsibilities often include setting the ACO's strategy (for example, target markets, lines of business, services offered, through which physicians and hospitals) and developing, managing, and communicating with the physician network to support continuity of care.

Key takeaways

Operating costs to run an ACO are significant. Ability to find ways to invest in fixed costs that are more transformational in nature may result in lower near-term profitability but can provide a greater return on investment in the long term both for the ACO and the rest of the system. The decision to make these investments is

¹⁸ McWilliam JM, Chernew ME, and Landon BE, "Medicare ACO program savings not tied to preventable hospitalizations or concentrated among high-risk patients," *Health Affairs*, 2017, Volume 36, pp. 2085–93.

dependent on the number of lives covered by an individual ACO.

ACO Archetypes

Drawing on the analysis outlined above, we conducted scenario modeling of “the math of ACOs” using five different ACO archetypes, which vary in structure and performance under a common set of rules. These five archetypes include:

1. Typical physician-led ACO
2. Hospital-led ACO with low ACO penetration and low leakage reduction
3. Hospital-led ACO with high ACO penetration
4. Hospital-led ACO with high leakage reduction
5. Hospital-led ACO with high leakage reduction and high ACO penetration

Subsequently, taking an ACO’s structure as a given, we describe for each ACO archetype the key model design parameters and other strategic and operational choices that ACOs might make to maximize their performance.

Comparison of archetypes based on scenario modeling

Summarizing the four factors, the profitability of each archetype reveals certain insights (Exhibit 5).

In a situation with only 25 percent of lives in the ACO, Scenario 2 (one-sided hospital-led

ACO) compared with Scenario 4 (two-sided hospital-led ACO with high leakage reduction) highlights the importance of the shared savings rate (over \$15M) and managing leakage (over \$30M). Individually, each of these factors will bring the hospital-led ACO to (nearly) break even, but for a hospital-led ACO to function without concern of yearly fluctuations, both factors must be addressed.

As scale increases though, so does the profitability of participating in an ACO, as seen between Scenarios 2 and 3, which are the same except for the increase in a hospital’s covered lives from 25 percent to 80 percent. While the operating expenses are also greater, the bonus payments offset those necessary investments. Scenario 5 further shows the impact of also managing leakage, the value of which increases proportionally with the number of covered lives. All the hospital paths show how focusing only on the bonus payment, and not accounting for “demand destruction” and operating expenses, can lead to an incomplete view of the economic impact of becoming an ACO.

Conclusion

Based on ACO results published to date, physician-led ACOs generally do better and are more profitable than their hospital counterparts. Thus, the real question we aimed to unpack is how can hospital-led ACOs adapt

Exhibit 5

Five scenarios for organizations entering ACOs.

Description						ACO profitability equation, \$M				
Path	Leader	ACO lives (% of total)	Risk-sharing arrangement	Savings rate, %	Percent leakage reduction, ¹ %	Bonus pay-ments	⊕ Demand destruc-tion	⊕ Market share gains	⊕ Operating costs	⊖ Net con-tribution margin
1	Physician	100K (25%)	One-sided	50	0	15	4	0	-10	9
2	Hospital	100K (25%)	One-sided	50	0	15	-21	0	-10	-16
3	Hospital	320K (80%)	Two-sided	100	0	96	-36	0	-32	28
4	Hospital	100K (25%)	Two-sided	100	30	30	-21	30	-10	29
5	Hospital	320K (80%)	Two-sided	100	30	96	-36	96	-32	124

ACO, accountable care organization.

¹From pre-ACO 50% network integrity.

Checklist for hospital-led ACOs

From these scenarios, we have uncovered a checklist that hospitals should review before transitioning to an ACO:

- How large an ACO are you planning to create? Are you really willing and able to go “all-in?”
- If you do not become an ACO, what is your alternative option (for example, status quo)?
- Can you manage “demand destruction” given your market structure? Will physicians change their behavior?
- Do you have the right assets to manage total cost of care? What additional capital investments will be needed?
- Is there wasteful spending across your current organization that could be “harvested” to increase profitability?
- How well developed are your core systems to manage an ACO population? What additional investments will you need to make?
- Can you negotiate financial terms that allow you to succeed over multiple years?

to be more profitable? We created a series of scenarios in an attempt to represent most hospitals in the United States and found four common themes:

- **Know the implications of your structure:** As our results show, hospitals that commit to ACOs—high savings rate from taking on two-sided risk and a large number of lives—will find it easier for the math to work. But making the commitment itself is not enough: A hard look needs to be taken at the internal and external structure, both of the hospital and affiliated network, as well as the local market, to understand the probability of success. A hospital can take certain broad actions, such as having the right organizational structure or owning the right assets, to increase the probability of success. However, certain factors are unchangeable but important to account for, such as geographic isolation.
- **Operationalize locally:** As hospitals develop new programs, they must avoid using “blunt” instruments and instead take a nuanced and personalized approach. While vendors of population health programs may offer off-the-shelf solutions, those capabilities need to be tailored to manage the profile of the covered lives under the ACO. Furthermore, pulling the same levers (for example, post-acute care) may be common place for all ACOs, but how it is done (for example, network optimization, owning assets) may differ based on the local market. Accounting for the local market will be important to effectively manage spillover effects, which our results show can be a critical difference between profitability and unprofitability.
- **Take a multi-year view:** When a hospital fully commits to becoming an ACO, it is essential to take a multi-year view. This view applies to major contract terms, such as aligning on the re-baselining methodology, as well as investments in programs
- **Be smart about economies of scale when building infrastructure:** No one doubts the additional operating expenses involved in becoming an ACO. Yet it is important to be strategic about what to build versus what to buy. Many of the

needed capabilities, such as analytics, have been developed and can be leveraged off-the-shelf through partnerships, vendor arrangements, and the like. Accessing these services can lessen the burden of high fixed costs to aid hospitals when they first decide to participate in an ACO.

The above themes help determine why it is important to “know who you are.” Without access to all of these value levers and the ability to adjust each variable in the math equation, the success rate for a hospital-led ACO narrows significantly. Thus, not all hospitals are set up for success as an ACO, given the way ACOs currently operate. Com-

pleting a checklist of readiness (see sidebar) that also contemplates timing of implementation is important to assess impact and the likelihood of success.

Likewise, for private and public payers, these findings should help identify potential modifications in ACO designs that will likely both increase the number of hospitals that could be successful and decrease the margin of error for a participating hospital to make programs more attractive. ACOs are important vehicles that can help the United States realize its healthcare spending goals, but they require further refinement to increase adoption and success.

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