

IN DEPTH

The Economic Case for Vertical Integration in Health Care

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There is an economic case to be made for the vertical integration of health care delivery and financing as the model best suited for *owning the whole patient*, as we introduce the term. This entails complete responsibility for a patient, spanning coverage, care delivery, and administrative processes. Owning the whole patient requires aligning financial incentives between providers, payers, and patients; establishing holistic access by providers and payers to patient health data, coupled with analytics tools to guide care management and coordination; and developing seamless and personalized consumer experiences around administration of care and coverage. Vertically integrated models of care and coverage that achieve these requirements have the potential to lower health care costs, improve care quality and outcomes, and enhance the patient experience.

Why do firms that occupy distinct stages in the U.S. health system — such as health care insurers, providers, and pharmacies — combine? In health care, as in other industries, it is more intuitive and more commonly seen for like organizations at a similar stage — two hospitals, say — to enjoy economies of scale from integrating operations. By one estimate, these like-for-like, or *horizontal*, combinations make up more than 80% of all mergers,¹ and the theory underpinning them can be traced back at least to the writings of Adam Smith.² By contrast, the theory of *vertical* integration (such as payer-provider or payer-pharmacy mergers), is more recent, with its modern manifestation coming from the work of economist Oliver Williamson in the 1970s and 1980s. Williamson's seminal work on transaction cost economics posited that firms across industries vertically integrate chiefly to overcome *holdup* problems, in which uncertainty and complexity in certain markets preclude efficient arms-length contracting across the stages of an industry.³ (Holdup arises for contracts in which one party would effectively cede leverage to the other; the lack of a viable contractual recourse prevents firms from effectively cooperating.) Firms, in other words, pursue

vertical combinations when owning a process end-to-end can achieve what third-party contracts alone cannot.

Given that uncertainty and complexity are endemic to the delivery and financing of American health care, the central insight to draw is that such health care firms pursuing vertical combinations can outperform those that are reliant on third-party contracts. Yet the dominant organizational model of today's delivery system is one of arms-length contracts, not integrated operations. A typical clinical encounter in the United States involves transactions among a range of independent entities, including providers, insurers, pharmacies, benefit managers, health IT developers, and third-party administrators, to name a few. Central to this complexity is that the vast majority of Americans are financing and managing their care independently of the delivery system through a mélange of third-party institutions — employers, insurance carriers, and government payers such as Medicare and Medicaid. Vertically integrated delivery and financing systems like Kaiser Permanente are few; a 2015 report estimated that less than 10% of the insured population is enrolled in such models.⁴

Given the paucity of vertically integrated health systems, should we infer, then, that U.S. health care is largely exempt from the holdup phenomena Williamson identified? The arc and sweep of care and coverage in America suggests such a conclusion would be premature. Indeed, at its advent roughly 90 years ago, modern health insurance was conceived as a vertically integrated offering. A canonical example is the Texas health plan launched in 1929 by Justin Ford Kimball, who, as executive vice president of Baylor University's health care operations, developed a plan to provide prepaid inpatient care for 1,500 teachers at its campus hospital.⁵ His integrated "Blue Cross" health plan went on to be widely adopted in concert with the American Hospital Association and, along with its regional counterparts around the country — and sister, physician-sponsored "Blue Shield" plans for outpatient services — served as the "the dominant form of [health care] prepayment" in America for several decades.⁶ By the 1970s, however, the Blue Cross and Blue Shield plans had essentially unwound their provider linkages, and for the past few decades vertical integration has been extremely rare.

Today, vertically integrated models are once again proliferating. In 2018, we saw the closing of the two of the largest health care services mergers on record.⁷ (For disclosure, Lazard advised on both of these transactions.⁸) Most national managed care organizations have now begun pursuing a vertical integration strategy centered on care delivery, though approaches vary. Health plans launched by providers, too, are on the rise; estimates suggest that enrollment in these plans increased more than 25%, or by about 3 million, between 2010 and 2014.⁹

This resurgence not only represents a promising path forward for advancing the Triple Aim,¹⁰ but it is also predicated on applying Williamson's insights on the value of vertical integration to a renewed industrial logic around care and coverage: the case for what we have coined *downing the whole patient*, which involves entities assuming complete responsibility for patients' health care delivery and financing, and offers an increasingly compelling path for achieving improved clinical outcomes and patient experience at lower costs. Here we articulate the vision for owning the whole patient and examine this phenomenon through the lens of empirical evidence for its likely implications, lay out why vertical integration is the most auspicious approach relative to contracting

for achieving this vision, and discuss historical barriers to integration and how these have abated in recent years. We conclude with considerations around evaluating these new models in the context of health care management and policy.

Industrial Logic for “Owning the Whole Patient”

For many patients, primary care providers (PCPs) serve as the de facto gatekeepers to health care — the trusted *owners* of a patient’s medical history and data, health needs, and interactions with other providers. (For instance, two-thirds of Medicare beneficiaries with comorbidities have a PCP serving as their main care provider.¹¹) Yet in many respects the typical PCP today is not well-positioned by the delivery system to serve as an owner in this capacity. In a fee-for-service (FFS) practice setting, financial incentives can run counter to the patient’s needs in managing total cost of care. The PCP has limited direct ability to tailor a patient’s coverage benefits or network access to address personal health goals and circumstances. Access to the patient’s electronic health data is constrained, excluding, for example, most inpatient care; even if the PCP happens to be part of a larger health system with a system-wide interoperable electronic medical record, it would only, on average, capture about one-fourth to one-half of the patient’s clinical encounters and exclude most other sources of data (e.g., pharmacy prescription fills). And myriad costs and frictions for patients associated with billing, claims adjudication, and other administrative processes lie in part outside the PCP practice’s area of responsibility or authority. Care managers embedded with payers face similar sets of challenges.

To own the whole patient, as we define it, is to take complete responsibility for a patient’s care and coverage and to fill these gaps by establishing three conditions:

1. Aligned financial incentives between providers, payers, and patients, along with the ability to customize benefit and network design
2. Holistic access by providers and payers to patient health data, coupled with analytics tools to guide care management and coordination
3. Seamless and personalized consumer experiences around administration of care and coverage

A corollary of this framework is that aligning care and coverage — which can in principle be done either contractually or through vertical integration — is a prerequisite for full ownership, even as a variety of separate delivery or financing models can provide partial solutions. Hospitals, for example, that combine with outpatient physician practices may partly mitigate care and data fragmentation across the care continuum, but such combinations in and of themselves retain contracted FFS incentive structures and administrative processes — and, accordingly, are not our focus here.

“ *The case for what we have coined owning the whole patient involves entities assuming complete responsibility for patients’ health care delivery and financing, and offers an increasingly compelling path for achieving improved clinical outcomes and patient experience at lower costs.*”

Fully realizing the vision of patient *ownership* begins with uniting otherwise disparate and conflicting economic models between health care providers and payers into a single profit-and-loss structure, again either contractually (e.g., via value-based contracts) or through vertical integration. The resultant alignment around financial incentives, where providers are rewarded for every dollar of averted medical costs, could have especially significant implications for types of care with high variation in outcomes and utilization — such as in post-acute care, which drives three-fourths of the variation in adjusted Medicare spending according to the National Academy of Medicine.¹² Recent studies of movers in Medicare and TRICARE have underscored the view that provider practice-pattern variation (as opposed to variation in the patient population) accounts for the majority of geographic variation in health spending.^{13,14} Though the drivers of this variation are unclear, unified financial incentives in principle offer an instrument to reduce it by harmonizing practice behaviors, with a limited though growing literature documenting an association between financial incentives and physician practice patterns.¹⁵⁻¹⁷

Aligned financial incentives, in turn, provide the impetus for integrated datasets with a holistic view of patients' health histories and needs, spanning medical care and social determinants — powered, in particular, by fully identified linked sets of clinical and claims data. Whereas clinical data from a particular provider contain a content-rich, timely, provider-specific view of a subset of overall patient care, claims data from payers trades both richness and timeliness for a comprehensive, standardized perspective that spans all providers and includes, e.g., pharmacy fill data (Figure 1).

FIGURE 1

Comparison of Claims and Clinical Data

Claims and clinical data provide complementary perspectives on patients' health histories and medical needs. This holistic patient perspective is key for successfully owning the whole patient. For each class of data, checkmarks denote advantages and x-marks denote disadvantages.

| | Claims Data | Clinical Data |
|-----------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Scope | ✓ Full care continuum across systems | ✗ Care within given system ✗ Excludes non-EMR facilities |
| Richness | ✗ Limited to DRG/CPT/HCPCS codes | ✓ High (e.g., vitals, lab tests, history, etc.) |
| Structure | ✓ Highly structured and standardized | ✗ Highly unstructured and variable |
| Timing | ✗ Long lag time; only when claim is filed (30+ days) | ✓ Data available nearly instantaneously |
| Rx | ✓ Filled prescriptions ✗ No non-prescription drugs or unfilled prescriptions | ✓ Adherence data in addition to unfilled prescriptions ✓ Includes non-prescription drugs ✗ Lack of real-time fill data |

Source: The authors

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Reducing unwarranted variation and improving quality in care may depend on this kind of complementary data integration, both by arming care providers with practice-relevant insights and creating opportunities for a raft of new care and coverage tools: active clinical decision support and other data analytics solutions (e.g., improved risk stratification); patient-centered, value-based benefit design, including, e.g., targeted copayments to encourage prescription adherence based on medical history¹⁸; and real-world evidence and surveillance frameworks for prescription drugs and medical devices.¹⁹

“ Fully realizing the vision of patient ownership begins with uniting otherwise disparate and conflicting economic models between health care providers and payers into a single profit-and-loss structure.”

Owning the whole patient also offers a path to reducing administrative frictions in the U.S. delivery system that, as a general rule, service arms-length, FFS contracting arrangements between payers and providers (i.e., billing and insurance-related activities, or BIR).²⁰ BIR processes impose an

economic cost of approximately 10% to 20% of total U.S. health care expenditures and partly explain the wedge in health spending between the United States and other countries.²¹⁻²³ They are also contributors to provider burnout and patient dissatisfaction with the health system.²⁴ A vivid example is the current state of revenue-cycle management, which involves the adjudication of billing and claims between providers and payers and is frequently cited as an impediment to the patient experience — e.g., as a barrier to point-of-care billing and price transparency.²⁵⁻²⁷ At a minimum, where care and coverage is integrated, revenue cycle management could be supplanted with real-time claims adjudication.²⁸

Empirical Evidence for Owning the Whole Patient

Empirical evidence bearing out the arguments for owning the whole patient is admittedly scarce. This is partly attributable to a dearth of real-world examples achieved either contractually or through vertical integration, reasons for which we discuss further. It is also a result of sparse publicly available data on the few organizations with either contractual or vertically integrated patient ownership and to the facility-level rather than organization-level focus of public provider performance data, such as the federal [Hospital Compare tool](#). Nevertheless, below we lay out a mosaic approach to evaluating the prospects of such models based on the limited evidence that does exist.

Financial Incentives. Three main, albeit imperfect, sources of data allow for inferences regarding the impact of owning the whole patient on cost and utilization, at varying levels of payer and provider alignment: (1) outcomes of bundled-payment, Accountable Care Organizations (ACOs), and other value-based payment models from government and commercial payers; (2) announced and estimated medical cost synergies from recent payer-provider transactions (partnerships, joint ventures, and mergers and acquisitions); and (3) the historical operating performance of vertically integrated provider-sponsored health plans. Savings estimates from these models relative to conventional delivery models, either cross-sectionally or in time series, are detailed in Table 1 and, though sources and methodologies vary considerably and in many cases reflect self-reported analysis, the data suggest the potential for cost savings of as much as 15% or more with full alignment.

Strictly speaking, these cost savings may also flow from other dimensions of owning the whole patient, including data-sharing. Taken together, however, they appear to follow a *dose response* curve, where utilization savings are broadly proportional to the degree of financial alignment between payers and providers, suggesting that incentives are an important factor.

Data Analytics. A diverse literature documents the potential for enhanced diagnostic and care-management capabilities from combining insurance claims data, electronic health record data, and other health data sources. This literature focuses on the value of holistic data in traditional (e.g., FFS) settings but speaks to the value of linking this data under a whole-ownership model. A 2017 study found that combining claims and clinical data increased retrospective identification of chronic conditions like cancer and diabetes by more than 10% and improved the ability of a risk stratification model to predict high utilizers of care.²⁹ This research and selected others like it are summarized in Table 2.

Table 1. Illustrative Medical Cost-Savings Estimates from Models of Owning the Whole Patient

| Category | Description | Type | Reference | Study Type | Central Finding on Cost Savings |
|---------------------|------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------|
| Contractual | Medicare Shared Savings Program | Contractual | MedPAC, 2019 ^{T-1} | Report | Approximately 1% to 2% reduction |
| | Aetna ACOs | Contractual | Stockton, 2017 ^{T-2} | Market Data | 12.4% reduction (observational) |
| | UnitedHealthcare ACOs | Contractual | UnitedHealthcare, 2018 ^{T-3} | Market Data | 7% reduction |
| | Vermont Medicaid ACO | Contractual | RTI International, 2018 ^{T-4} | Report | 8.4% reduction |
| | Camden Coalition Medicaid ACO (NJ) | Contractual | Truchil, et al., 2018 ^{T-5} | Peer-Reviewed | 0.4% to 5.3% reduction |
| | BCBS AZ ACO | Contractual | Daly, 2018 ^{T-6} | Market Data | Approximately 3.7% reduction |
| | BCBS MA Alternative Quality Contract (AQC) | Contractual | Kaufman, et al., 2019 ^{T-7} | Peer-Reviewed | 11.7% savings (relative to control states) |
| Partial Integration | BCBS of Western NY and Kaleida | Partnership | Kaleida Health, 2013 ^{T-8} | Market Data | Expected 6% to 10% reduction |
| | ElevateHealth: Harvard Pilgrim, Elliot Health, and Dartmouth-Hitchcock | Joint Venture | Palermo, 2013 ^{T-9} | Market Data | Expected 10% reduction (Note: other reports of 15% to 20% savings from performance data) |
| | Aetna-Inova | Joint Venture | Morse, 2016 ^{T-10} | Market Data | Approximately 8% reduction |
| | Aetna-Banner | Joint Venture | Nettesheim, 2017 ^{T-11} | Market Data | 11.5% reduction |
| Full Integration | Provider-Led ACA Exchange Plans | Vertically Integrated | La Forgia, et al., 2017 ^{T-12} | Peer-Reviewed | 6% to 9% reduction in premiums relative to Blues, regional, and national insurers |
| | Provider-Led MA Plans | Vertically Integrated | Frakt, et al., 2013 ^{T-13} | Peer-Reviewed | Mixed impact; integrated plans charge higher premiums but markets with more integrated entities associated with lower premiums |
| | Staff-Model HMOs | Vertically Integrated (includes group-model HMO) | Staines, 1993 ^{T-14} | Peer-Reviewed | Modeled 10% reduction |
| | Kaiser Permanente | Vertically Integrated | Pearl R, Madvig P. 2020 ^{T-15} | Report | 10% to 15% reduction |
| | Group Health Cooperative | Vertically Integrated | Manning, et al., 1985 ^{T-16} | Report | 25% reduction |

Though sources and methodologies vary considerably, and in many cases reflect self-reported analysis, public data on a range of models, from contractual programs to vertically integrated entities that align financial incentives between payers and providers consistent with owning the whole patient, suggest the potential for cost savings of as much as 15% or more. Source: The authors and references cited: T-1. MedPAC. Assessing the Medicare Shared Savings Program's Effect on Medicare spending, 2019. Medicare Payment Advisory Commission, Washington DC. http://www.medpac.gov/docs/default-source/reports/jun19_ch6_medpac_reporttocongress_sec.pdf?sfvrsn=0. T-2. Stockton John. Building a healthier world: Improving health care with accountable care. April 6, 2017. Aetna. <https://www.mywahu.org/wp-content/uploads/2017/04/Aetna-WAHU-presentation-4.6.17.pdf>. T-3. UnitedHealthcare. Network Strategy Part 2: ACOs translate theory into real-world savings, rewards. July 2018. <https://www.uhc.com/employer/news/consultant/network-strategy-part-2-acos-translate-theory-into-real-world-s>. T-4. RTI International. State Innovation Models (SIM) Initiative Evaluation: Model Test Year Five Annual Report. December 2018. Centers for Medicare & Medicaid Services. Baltimore. <https://downloads.cms.gov/files/cmmi/sim-rd1-mt-fifthannrpt.pdf>. T-5. Truchil, Aaron; Dravid, Natasha; Singer, Stephen; Martinez, Zachary; Kuruna, Teagan; Waulters, Scott. Lessons from the Camden Coalition of Healthcare Providers' First Medicaid Shared Savings Performance Evaluation. Population health management. August 1, 2018. Pages 278-284. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6070124/>. T-6. Daly, Rich. Lessons from a BCBS Plan's Plunge into Value-Based Payment. November 27, 2018. <https://www.hfma.org/topics/news/2018/11/62475.html>. T-7. Kaufman, Brystana G.; Spivack, B. Steven; Stearns, Sally C.; Song, Paula H.; O'Brien, Emily C. Impact of Accountable Care Organizations on Utilization, Care, and Outcomes: A Systematic Review. Medical Care Research and Review, June 1, 2019. Pages 255-290. <https://www.ncbi.nlm.nih.gov/pubmed/29231131>. T-8. Kaleida Health. BCBS Rolls Out Rates for Optimum Physician Alliance. May 9, 2013. <https://www.kaleidahealth.org/kyi/news/?i=3983>. T-9. Palermo, Sarah. Harvard Pilgrim, Elliot Health and Dartmouth-Hitchcock unveil new care-coordination network. Concord Monitor. September 10, 2013. <https://www.concordmonitor.com/Archive/2013/09/ElevateHealth-cm-091013>. T-10. Morse, Susan. Innovation Health sees cost savings, future in joint payer and provider network. June 13, 2016. <https://www.healthcarefinancenews.com/news/innovation-health-sees-cost-savings-future-joint-payer-and-provider-network>. T-11. Nettesheim, Brigitte. Podcast: Brigitte Nettesheim Shares Aetna's Unique Strategy for Payer-Provider Partnerships. April 25, 2017. https://health.oliverwyman.com/2017/04/podcast_aetnas_brigitte_nettesheim.html. T-12. La Forgia, Ambar; Maeda, Jared Lane K; Banthin, Jessica S. Are Integrated Plan Providers Associated with Lower Premiums on the Health Insurance Marketplaces? February 1, 2017. Medical Care Research and Review, Vol. 75, Issue 2. Pages 232-259. <https://www.ncbi.nlm.nih.gov/pubmed/29148327>. T-13. Frakt, Austin B; Pizer, Steven D; Feldman, Roger. Plan-provider integration, premiums, and quality in the Medicare Advantage market. December 2013. Health services research. Issue 6pt1. Pages 1996-2013. <https://www.ncbi.nlm.nih.gov/pubmed/23800017>. T-14. Staines, Verdon S. Potential Impact of Managed Care on National Health Spending. Health Affairs. 1993. Pages 248-257. <https://www.ncbi.nlm.nih.gov/pubmed/8477937>. T-15. Pearl R, Madvig P. 2020. Managing the Most Expensive Patients. January-February 2020. Harvard Business Review. <https://hbr.org/2020/01/managing-the-most-expensive-patients>. T-16. Manning, Willard G.;

Table 2. Selected Findings for Integration of Clinical, Claims, and Other Forms of Health Data

| Types of Data | Reference | Type of Study | Central Finding | Integrated Benefits? |
|------------------------------------------|----------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Clinical and Claims | Zeltzer, et al., 2019 ^{T-17} | Peer-Reviewed | Relative to claims data alone, prediction models based on clinical and claims data improve predictive power for length of stay and inpatient mortality (AUC* percent increase of 6.5% and 5.9%). More limited impact on readmissions and 1-year mortality (1.9% and 1.1%). | N |
| Clinical and Claims | Kharrazi, et al., 2017 ^{T-18} | Peer-Reviewed | Increase in risk-stratification model performance of 4.9% based on AUC* for identifying top 1% of utilizers. | N |
| Clinical and Claims | Hammill, et al., 2011 ^{T-19} | Peer-Reviewed | Increased predictive power for mortality (5.9% increase in AUC*). Similar performance on readmissions. | N |
| Clinical, Claims, Pharmacy, and Lab Data | Paruk, 2016 ^{T-20} | Market Data | In a health system of 4 million diabetic patients, 28% of diabetics were identified through EHR data, another 28% identified through claims data (and not through the EHR), and the remainder were identified with labs and pharmacy data. | N |
| Claims and Lab Data | Lim, et al., 2015 ^{T-21} | Peer-Reviewed | Addition of lab data to claims data improves model prediction for mortality by congestive heart failure (AUC* percent increase of 5.2%) and myocardial infarction (AUC* percent increase of 2.8%). | N |
| Claims and Pharmacy Data | Optum, 2017 ^{T-22} | Market Data | Overall medical cost savings of \$11-\$16 per member per month (PMPM). | Y |
| Claims and Pharmacy Data | Jain, 2017 ^{T-23} | Market Data | Reduces medical cost trend by 4 percentage points. | Y |
| Claims and Pharmacy Data | Baker, et al., 2018 ^{T-24} | Peer-Reviewed | Integrated Medicare Advantage prescription drug plans results in 11.6 percentage point decline in likelihood of opioid prescription, or a 37% relative reduction. | Y |

*AUC refers to area under the curve, in this case, a receiver operating characteristic curve; the area under an ROC curve is an assessment of diagnostic predictive power for a process or procedure, where a greater area indicates greater predictive power. Many studies have documented the potential for enhanced diagnostic and care-management capabilities from combining insurance claims data, electronic health record data, and other health data sources. These results speak to the value of owning the whole patient from the vantage point of linking these data sources. Source: The authors and references cited: T-17. Zeltzer, Dan; Balicer, Ran D; Shir, Tzvi; Flaks-Manov, Natalie; Einav, Liran; Shadmi, Efrat. Prediction Accuracy with Electronic Medical Records Versus Administrative Claims. *Medical Care*, July 2019; <https://www.ncbi.nlm.nih.gov/pubmed/31135691>. T-18. Kharrazi, Hadi; Chi, Winnie; Chang, Hsien-Yen; Richards, Thomas M; Gallagher, Jason M; Knudson, Susan M; Weiner, Jonathan P. Comparing Population-based Risk-stratification Model Performance Using Demographic, Diagnosis and Medication Data Extracted From Outpatient Electronic Health Records Versus Administrative Claims. *Medical Care*, August 2017. <https://www.ncbi.nlm.nih.gov/pubmed/28598890>. T-19. Hammill, Bradley G; Curtis, Lesley H; Fonarow, Gregg C; Heidenreich, Paul A; Yancy, Clyde W; Peterson, Eric D; Hernandez, Adrian F. Incremental Value of Clinical Data Beyond Claims Data in Predicting 30-Day Outcomes After Heart Failure Hospitalization. *Jan. 1, 2011. Circulation: Cardiovascular Quality and Outcomes*. <https://www.ncbi.nlm.nih.gov/pubmed/21139093>. T-20. Paruk, Fatima. Using Claims, Lab, and Clinical Analytics to Discover Diabetics. August 9, 2016. Health IT Analytics. <https://healthitanalytics.com/news/using-claims-lab-and-clinical-analytics-to-discover-diabetics>. T-21. Lim, Eunjung; Cheng, Yongjun; Reuschel, Christine; Mbowe, Omar; Ahn, Hyeong Jun; Juarez, Deborah T; Miyamura, Jill; Seto, Todd B; Chen, John J. Risk-Adjusted In-Hospital Mortality Models for Congestive Heart Failure and Acute Myocardial Infarction: Value of Clinical Laboratory Data and Race/Ethnicity. August 2015. *Health Services Research*. Pages 1351-1371. <https://www.ncbi.nlm.nih.gov/pubmed/26073945>. T-22. Optum. 2017. OptumRx: Measuring the financial advantage. https://www.optum360.com/content/dam/optum3/optum/en/resources/case-studies/measuring_the_financial_advantage_optum.pdf. T-23. Jain, Deepthi. 2017. Transforming Pharmacy Management with a Total View. https://file.anthem.com/2017_Drug_Trend_Report.pdf. T-24. Baker, Laurence C; Bundorf, Kate; Kessler, Daniel. The Effects of Medicare Advantage on Opioid Use. December 2018. National Bureau of Economic Research Working Paper Series. <https://www.nber.org/papers/w25327>.

Also included is reported real-world evidence from vertically integrated medical-pharmacy data combinations by way of commercial managed care organizations, which speaks generally to the value of more holistic health data for care management while also reflecting the impact of benefit integration. Importantly, because these studies are based on the combination value of structured data elements, they may understate the potential gains from integrating unstructured data like clinicians' notes. (As much as 80% of health data is thought to exist in unstructured data elements, chiefly clinical notes.³⁰)

Administration and Patient Experience. Academic research indicates that vertically integrated health plans in Medicare Advantage — i.e., where the health plans are owned by entities that deliver care — outperform conventional plans on measures of customer experience.³¹ Moreover, commercial rankings of health plan customer experience and perception by and large show relative outperformance by vertically integrated care and coverage models. In the 2019 J.D. Power

Commercial Rankings of health plans, for example, about one-third of the rated geographies feature a vertically integrated plan as the highest performer — including most regions with a large provider-led plan being evaluated.³² Similarly, Forrester's 2018 health insurer customer experience survey finds the two vertically integrated insurers in its sample among the five highest-rated plans, including the top spot.³³ The same study cites an insurer's vertical integration with a health network as a key determinant of its recent improvement in the rankings.

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Evidence on administrative costs is more indirect. One data point comes from a 2002 study that found that Kaiser Permanente in California had an administrative expense ratio of roughly 4% of revenues, a figure generally consistent with data reported to the state's Department of Managed Care today and well below ordinary levels for an HMO plan (8% to 12%).³⁴⁻³⁶ Another is from a study of Maryland's all-payer rate setting system, which functions as a proxy for some of the advantages of owning the whole patient in reducing provider contracting. The study team found that contractual rate-setting reduces provider administrative costs by about 9%, based on a comparison of Maryland's hospital costs to the national average, though an earlier study found no such benefit.^{37,38} By the same token, the many reports documenting lower average administrative expenses (e.g., as a share of overall health expenditures) in countries with single-payer health systems are suggestive of the potential advantages from more closely aligning providers and payers on a contractual basis.³⁹⁻⁴¹ (In purest form, entities with fully integrated care and coverage operate, in effect, as quasi-*single-payer* systems, albeit on a smaller scale and typically with Medicare and Medicaid contracted as third-party payers.)

Taken together, the market-leading performance of vertically integrated Medicare Advantage plans in the Centers for Medicare & Medicaid Services' Star quality rating system may reflect the sum total of these dimensions.⁴² It may also be reflected in the market's *revealed preference* for owning the whole patient, both from consumers (with above-market enrollment growth in provider-led health plans) and from managed care companies (in their pursuit of aligned care and coverage models via contracts and vertical integration). For instance, enrollment in provider-led health plans grew at a 6% average annual rate between 2010 and 2014; overall enrollment grew at less than 1% over this period.⁴³ In any case, this is an area ripe for further research, particularly as new examples of owning the patient come online.

Why Vertical Integration Is the Best Way to Own the Whole Patient

Owning the whole patient is a concept central to a range of care and coverage models that have emerged in recent years, and these models can be classified along a continuum of alignment: from contractual arrangements like ACOs and bundles, to joint ventures and minority-interest investments, to full vertical integration. Each of these broad classes of models brings with it a distinct set of merits and considerations, and the optimal choice for a given payer or provider can

be context-dependent. A number of arguments, however, suggest that in most settings vertical integration may offer the best path for owning the whole patient. At the core of this view lies Williamson's findings on the limits of contracts, as discussed above; owning the whole patient presents a textbook case for resolving the holdup problem, triggered in this case by barriers to contractual cooperation — uncertainty and complexity — between payers and providers.

These sources of uncertainty and complexity are manifold. First, the scope and scale of investments required for providers to successfully own the whole patient — investments that span data analytics, IT, care coordination, and so on — are uncertain *ex ante*, are capital-intensive, can be payer-specific, and can have a long payoff time even assuming the necessary risk-sharing contracts are in place.⁴⁴ A 2011 report commissioned by the American Hospital Association estimated that launching a five-hospital ACO necessitates start-up capital of more than \$12 million on average toward clinical information systems, care coordination and quality improvement, data analytics, and other investments, as well as annual operating expenses of roughly \$14 million.⁴⁵ The average health system of this size would not be expected to reach breakeven on these expenses for several years, even assuming a full risk contract and commensurate savings. In the literature on innovation, this lag between investment and payoff and its associated financing challenges is often referred to as the *valley of death*.⁴⁶ Conventional contractual agreements, even those with long-dated commitment terms, invite uncertainty and risk around the possibility of being unwound, leaving newfound assets stranded in the valley of death without a financing partner to reap longer-term payoffs. As an indefinite commitment, by contrast, vertical integration sidesteps this issue.

“*Conventional contractual agreements, even those with long-dated commitment terms, invite uncertainty and risk around the possibility of being unwound, leaving newfound assets stranded in the valley of death without a financing partner to reap longer-term payoffs.*”

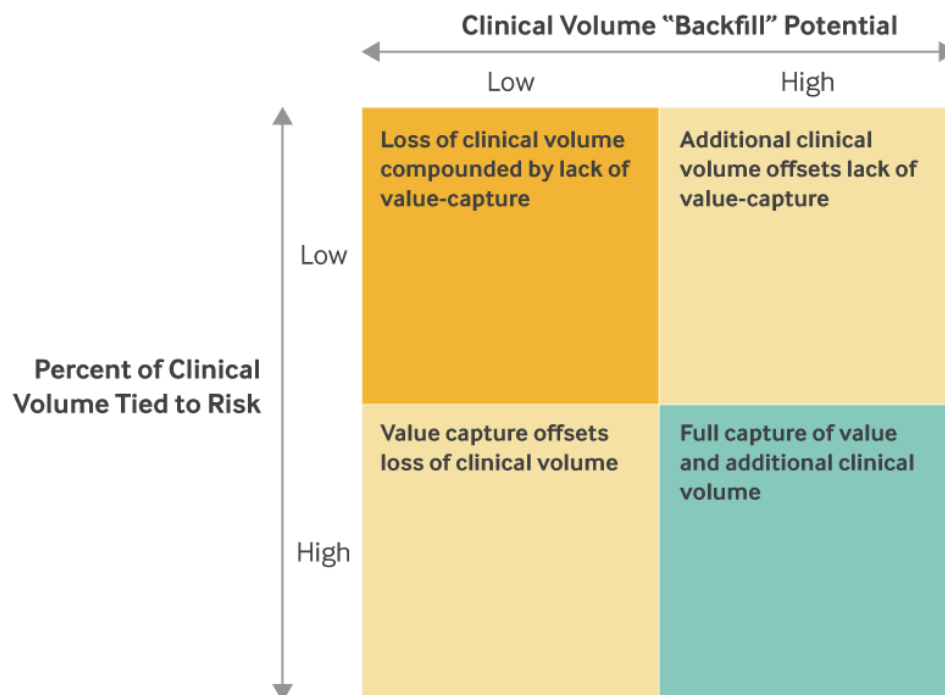
Second, providers taking on full patient ownership absent a longer-term commitment device incur the risk of ceding bargaining leverage to their payer partners over time, and vice versa, creating market risk upon re-contracting. In effect, providers that transform practice patterns to achieve lower utilization rates not only face obstacles in capturing this value through shared savings beyond the contracting cycle, but also face a worsened financial outlook in the event of a return to FFS contracting in the future.⁴⁷ This re-contracting risk is accentuated by the imperative to consolidate and homogenize third-party integrated delivery and financing contracts over time, to the extent possible. After all, much of the value in owning the whole patient is likely gleaned when a majority of providers' care volume is tied to the whole patient via aligned financial incentives around the total cost of care. (A corresponding rule of thumb is for at least 50% of a patient panel to be financially aligned around cost of care to sustainably drive a provider's incentives.) There is intuitive value in consistent, payer-agnostic incentive and programmatic structures across a provider's patient base. In addition, this re-contracting risk is heightened because providers managing-down utilization with a subset of revenues tied to integrated care and coverage models will offset FFS earnings, absent surplus patient volume to fill newly liberated clinical capacity

(Figure 2).⁴⁸ Providers looking to shift the majority of clinical volume to a smaller set of integrated contracts, however, will increase the buying power of payer partners over the contracting cycle per standard Nash bargaining models.^{49,50} As before, vertical integration ameliorates this re-contracting risk.

FIGURE 2

Relationship Between Medical Cost Savings and Provider Profitability Under Risk-Sharing Arrangements

Providers taking on risk-based contracts are generally best-positioned for success where financial incentives across payer contracts are aligned to value and/or newly liberated clinical capacity can service additional patient volume. Vertical integration offers the prospect of both value-alignment and additional volume through member steerage.



Source: The authors

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Third is the complexity of negotiating pairwise, bespoke integrated care and coverage contracts to account for nuances in patient attribution, cost benchmarks, accountability, renewal terms, etc. — as well as the uncertainty around new models, as noted previously. Again, these terms must be negotiated with an eye toward renewal at the end of the contract. And, once established, they are either challenging to modify over the duration of the contract, leaving little room for the kind of experimentation required around new models of integrated care and coverage, or else they create concerns around accountability. This tradeoff between rigidity and flexibility is intrinsic to parties with incomplete contracts and *ex ante* uncertainty.⁵¹

Fourth, as discussed previously, is that achieving the full vision of owning the whole patient stems from the alignment of data, strategy, and operations across payers and providers. But an array of practical, regulatory, and competitive limitations to sharing this information exists outside of a merger, not least because of the possibility that the alignment is eventually unwound, returning both organizations to zero-sum contract negotiations. Though, as one example, regulatory mandates for data interoperability may ultimately overcome these barriers, at present they limit sharing of real-time clinical, claims, pharmacy, and other data, which could trigger concerns around privacy or long-term competitiveness⁵²; coordinated strategic planning, such as around growth plans, capital investments, clinician performance and recruitment, supply chain contracting, etc.; and the creation of joint, seamless consumer interfaces and experiences.

Historical Barriers to Vertical Integration and Why These May Be Disappearing

Industrial logic notwithstanding, barriers to owning the whole patient via vertical integration are considerable. One example is that because payers conventionally contract with a wide network of providers (and vice versa), transitioning to an integrated model necessarily can pose risks for loss of access (for payers) and volume (for providers) via the partners who are left out of the integrated arrangement — and who are now directly competed against in the market. In addition to overcoming such potential channel conflicts, providers and payers must also circumvent business model complexities in transitioning to a vertically integrated model.

On the care delivery side, providers and payers must simultaneously abide two opposing sets of economic models: to minimize care volume, subject to maintaining care quality, for patients owned by the providers; and to maximize care volume, subject to patient health needs, for those in conventional third-party contracts, as noted above.⁵³ In the same vein, on the financing side, they find difficulty in truly owning the patient in lines of business that are less actively managed — e.g., administrative services-only group insurance, where costs of care are borne by employers and which constitutes nearly 50% of today's commercial market by enrollment.^{54,55}

“*On the care delivery side, providers and payers must simultaneously abide two opposing sets of economic models: to minimize care volume, subject to maintaining care quality, for patients owned by the providers; and to maximize care volume, subject to patient health needs, for those in conventional third-party contracts.*”

Regulatory uncertainty from U.S. competition authorities, principally the Federal Trade Commission (FTC) and the Department of Justice (DOJ), around oversight of vertical combinations (across industries) has somewhat tempered enthusiasm for these arrangements. One recent driver of this uncertainty has been a shift in vertical merger policy that accompanied leadership transitions at the DOJ and FTC in late 2017 and 2018; the result has been “a somewhat uncertain regulatory environment for significant vertical deals.”⁵⁶ And parties in the health care ecosystem

have long lagged counterparts from other industries in digitizing paper records and administrative processes, limiting opportunities around data analytics and potential efficiencies.⁵⁷

Historically these barriers have proven challenging to surmount. Longstanding observers of the U.S. health care industry will recall earlier waves of separations of vertically integrated payer-provider operations: first in the mid-1970s as the original Blue Cross and Blue Shield plans became independent of their hospital and physician group partners, respectively, and then again in the 1990s and early 2000s as tightly managed, staff-model HMOs gave way to broad network, loosely managed insurance models in the wake of the national backlash around managed care.⁵⁸⁻⁶⁰ Much of the industrial logic discussed above would be recognizable to practitioners during these waves. As discussed previously, though the industry is witnessing a Cambrian explosion of new models around owning the patient, conventional, arms-length, FFS-based contracting remains the dominant model today.

The recent waning of each of these historical barriers suggests that this time might be different. Channel conflicts, for example, diminish as entities on either side of the value chain become larger, all else equal. In other words, in a world of larger, horizontally consolidated payers and providers, payers can more readily integrate provider partners who can care for a significant cross-section of their member base, and providers can likewise maintain efficient care volume with one large payer partner (e.g., as described in Buzzell in 1983)⁶¹ by securing *minimum efficient scale* for vertical integration.

Business-model challenges, meanwhile, have been ameliorated with growth in and the emergence of new government lines of business that favor integrated models. Payers' business mix has shifted significantly toward more tightly managed business with growth in Medicare Advantage, Medicaid, and ACA exchange enrollment. (Today, Medicare Advantage, managed Medicaid, and individual market enrollment account for more than 30% of all private insurers' enrollees.) Meanwhile, the providers taking on risk via Medicare and Medicaid value-based payment programs and commercial analogues are already realigning incentive structures more closely with those of public and private payers. Approximately one-third of health care payments in 2017 flowed through shared-savings models, and about one-third of these were tied to two-sided risk, based on Health Care Payment Learning and Action Network data.⁶²

Recent regulatory actions may be dampening management and investor appetite for larger horizontal managed care mergers and acquisitions while lifting uncertainty over vertical transactions. And EHR adoption rates have skyrocketed, spurred on by the HITECH Act, with concomitant increases in electronic claims transmission and associated adjudication steps (e.g., prior authorization).^{63,64} Barriers to vertical integration remain, but the balance has tilted favorably in recent years.

Experimenting with Vertical Integration

The outlook for continued vertical integration between payers and providers points to more activity in the coming months and years. If these vertical models of owning the whole patient take hold, there are reasons to expect adoption rates to accelerate. Experience with markets with vertically

integrated players today — such as in California and Pennsylvania — illustrates that dynamics around market differentiation in cost and quality, as well as access, usually prompt other in-market players to adopt similar strategies. The growth of Medicare Advantage and ACA exchange business has favored provider-sponsored health plans, and new entrants into these markets are aggressively pursuing models with close provider collaboration, either through contracts or vertical integration. By the same token, once these models become well-established, innovations around integrating care management, operations, and data will diffuse and be copied rapidly.

“ *It remains to be seen whether vertical integration will replenish the armament for health care managers and policy makers battling cost growth, but what is certain is the impetus to try.* ”

Achieving wide adoption of these models is likely to require significant experimentation — few such playbooks exist today — and patient, persistent accommodation by executives, investors, administrators, and policy makers will be critical for facilitating the attendant learning by doing. This is not least because firms pursuing vertical integration must surmount challenges that include and go beyond the historical barriers discussed above; for these and other reasons, many new provider-sponsored health plans have struggled to attain profitability.⁶⁵ The natural post-merger complexities of integrating distinct functions and capabilities under a shared roof, for one, are heightened given that most vertically integrated firms will continue to see a subset of patients under traditional, arms-length contracting. Patients in public insurance programs, for instance, like traditional (non-managed) Medicare or Medicaid, would need to be wholly owned through contractual means rather than through vertical integration — as would those receiving coverage through self-insured employers. In some geographies, full vertical integration of care and coverage may not be possible for certain medical services (e.g., tertiary care) where a single provider exists. For such cases, vertical integration is more practically seen as a continuum rather than a binary, where more is generally better than less. In addition, there are legitimate questions to be raised about the impact of a shift toward vertical integration on consumer choice and on incentives of care providers, though these dynamics differ in degree rather than in kind from those in the value-based care landscape more broadly.

In the interim, leaders should take care to avoid reaching conclusions about the long-term potential of the vertically integrated model too quickly (particularly when informed by experiences of the 1970s and 1990s) and should avoid setting standards of evaluation that muffle further activity. Performance evaluations of Medicare's bundled-payment programs help illustrate the point. Though some recent quasi-experimental studies failed to establish statistical significance around medical cost savings from bundled payments, point estimates from these and other studies that consistently demonstrate gross savings — particularly when coupled with prior probability distributions around the promise of bundles, shortcomings in our FFS baseline, and low signal-to-noise ratios in care delivery — should at the very least invite further experimentation around the model.⁶⁶ More formally, conventional thresholds for statistical significance (e.g., p-values less than 0.05) may be too conservative for evaluating new care and coverage models if the status quo and the costs of prematurely rejecting these models are taken into account, as do Bayesian decision

analysis frameworks evaluating clinical trials for drug development.⁶⁷ The same principle extends to new vertically integrated structures.

Ultimately there is a collective imperative for new models of care and coverage, such as those enabled by owning the whole patient, so as to continue to find ways to bend the cost curve at equivalent or better outcomes. Even with decelerating per capita costs, aggregate health spending continues to climb as a share of the economy, driven by technological intensity, demographic shifts, and other trends. Meanwhile, a series of findings from health economists of late has underscored both the limitations of consumer-focused cost controls — given evidence that patients are deferential to physician referrals for downstream care — and therefore the centrality of delivery-system reform to the story of outsize American health costs.⁶⁸ It remains to be seen whether vertical integration will replenish the armament for health care managers and policy makers battling cost growth, but what is certain is the impetus to try.

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