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Transformation of the Health Care Industry: Curb Your Enthusiasm?

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Policy Points:

- Policymakers seek to transform the US health care system along two dimensions simultaneously: alternative payment models and new models of provider organization.
- This transformation is supposed to transfer risk to providers and make them more accountable for health care costs and quality.
- The transformation in payment and provider organization is neither happening quickly nor shifting risk to providers. The impact on health care cost and quality is also weak or nonexistent.
- In the longer run, decision makers should be prepared to accept the limits on transformation and carefully consider whether to advocate solutions not yet supported by evidence.

Context: There is a widespread belief that the US health care system needs to move "from volume to value." This transformation to value (eg, quality divided by cost) is conceptualized as a two-fold movement: (1) from fee-for-service to alternative payment models; and (2) from solo practice and freestanding hospitals to medical homes, accountable care organizations, large hospital systems, and organized clinics like Kaiser Permanente.

Methods: We evaluate whether this transformation is happening quickly, shifting risk to providers, lowering costs, and improving quality. We draw on recent evidence on provider payment and organization and their effects on cost and quality.

Findings: Data suggest a low prevalence of provider risk payment models and slow movement toward new payment and organizational models. Evidence suggests the impact of both on cost and quality is weak.

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Conclusions: We need to be patient in expecting system improvements from ongoing changes in provider payment and organization. We also may need to look for improvements in other areas of the economy or to accept and accommodate prospects of modest improvements over time.

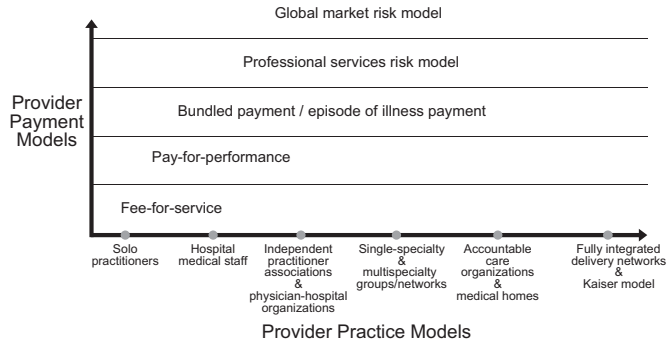
Keywords: value, cost, quality, payment, organization.

Many observers assert that the US health care industry is undergoing a transformation from "volume to value."[1,2] This transformation is said to manifest itself both in insurer markets as new alternative payment models (APMs) and in provider markets as new organizational models such as accountable care organizations (ACOs) and patient-centered medical homes (PCMHs). (See online Glossary for definitions.)

It is not entirely clear when this transformation began or how much of a change it was. While the managed care era of the 1990s set the stage by emphasizing cost containment, the period from 2005 to 2008 seems pivotal in terms of the change narrative. During this period, the Centers for Medicare and Medicaid Services (CMS) proposed pay-for-performance (P4P) as a solution to the sustainable growth rate (SGR) problem in Medicare. The Commonwealth Fund issued a framework calling for affordable access to excellent care while maximizing efficiency in its delivery and administration, and it called for the simultaneous change in provider payment and delivery to reduce fragmentation of care and transfer risk to providers.[3,4] Michael Porter and Elizabeth Teisberg called for competition based on "value" (quality divided by cost), the need for episode-based payment, and the need by providers to transform the way they delivered care to achieve value.[5] Eliot Fisher and colleagues called for the creation of ACOs based on extended hospital medical staffs.[6] And Donald Berwick and colleagues advocated a new set of performance measures organized around "the triple aim."[7]

There are at least 4 implicit (and sometimes explicit) hypotheses underlying this transformation to value. First, by getting providers to (1) move away from fee-for-service (FFS) and accept new APMs such as P4P and (2) reorganize into larger delivery vehicles such as ACOs, providers will deliver care of higher quality and lower cost. Second, this transformation is already underway, based on growth in APM reimbursement and the number of ACOs. Third, the transformation will lead to more capitated, integrated care delivered by organizations

Figure 1. Simultaneous Change in Payment and Provider Organization



resembling Kaiser Permanente and other closed-panel health maintenance organizations (HMOs). Fourth, advocates generally assume that higher quality goes with lower cost; higher (lower) quality delivered at higher (lower) cost is a thorny issue less often considered.

These hypotheses are untested, given the slow take-up of these ideas and the recency of APMs and ACOs. The putative wisdom underlying the transformation narrative also has not been critically examined. This article evaluates whether the transition is (1) happening quickly, (2) shifting risk to providers, (3) leading to higher quality and lower cost care, and (4) inevitable. We also consider forces that may oppose or attenuate transformation, and other approaches to cost containment and quality improvement.

Transformation in Health Care

The dictionary defines *transformation* as a profound change in form in the life history of an organism—eg, from a tadpole to a frog. Transformation does not necessarily imply that a frog is higher value than a tadpole, just different.

Transformation in the health care system is often depicted in 2-dimensional Cartesian drawings (see Figure 1) as "evolving" along (1) the *y*-axis from FFS to P4P, case and bundled payment rates, and ultimately to global capitation and population-based payments and (2) the

x-axis from solo physicians to medical groups, provider alliances such as physician-hospital organizations (PHOs) and independent practitioner associations (IPAs), integrated delivery networks (IDNs), ACOs, and Kaiser-like clinics prepared to accept capitation.[8] In contrast to an organism, however, this transformation is not assumed to arise naturally, but needs to be designed by policy experts and fostered by industry leaders—and is assumed to arrive at a superior end state.

Figure 1 suggests an inevitable, linear, uninterrupted, and smooth transition. The Health Care Payment Learning and Action Network (HCP-LAN), launched in 2015 by the US Department of Health and Human Services (HHS) to promote APMs, views the evolution in payment in terms of 4 stages.[9] According to the Commonwealth Fund, this trajectory is associated with both greater provider accountability and greater impact on cost and quality. Perhaps this is why the transformation is considered inevitable, even though it still needs external encouragement and help.

These shifts are also said to be accompanied by a host of supporting systems—closed networks, team-based care, population health, development of quality measures, care coordination, etc—that permit greater risk assumption by providers.[4,8] Aided by such tools, providers can deliver health care that is higher quality, lower cost, more patient-centric (rather than provider-centric), and coordinated.

There are several ways to think critically about Figure 1: (1) consider prior transformations (both long term and short term) in the history of the US health care system; (2) compare current changes with those undertaken during the 1990s and ask what is different this time around; (3) assess the likelihood of jointly accomplishing the dual goals of transformation (higher quality and lower cost); (4) examine the evidence regarding the spread of APMs and new provider organizational models and their impact on cost and quality; and (5) examine the headwinds confronting this transformation, which may cause it to stall. The remaining sections of this paper develop these 5 approaches.

Prior Transformations in the US Health Care Industry

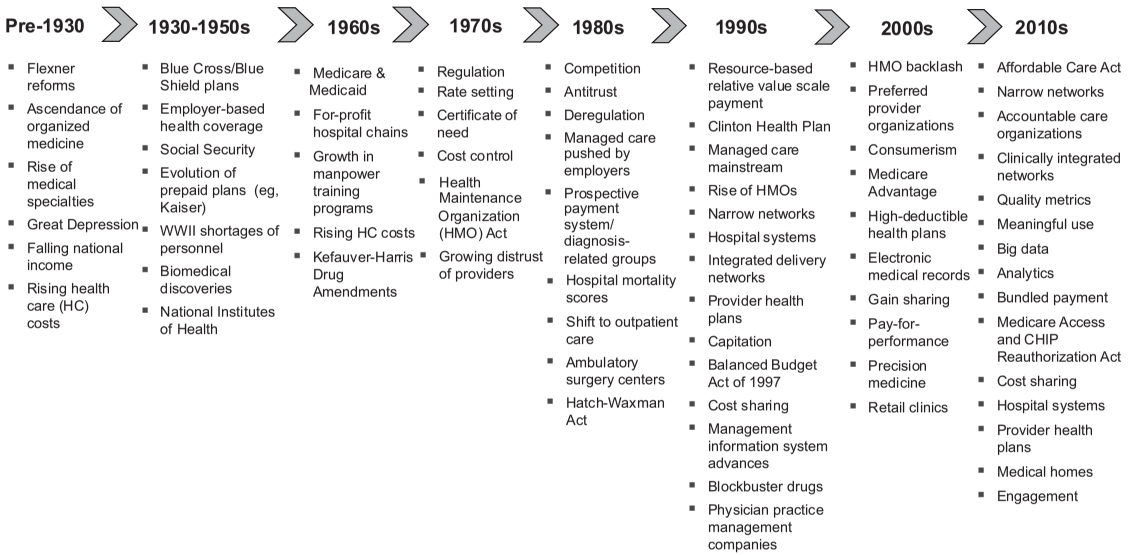
The US system has undergone several transformations extending back to the early 1900s. In his book, Paul Starr depicted the rise of physician autonomy and then its gradual erosion in the 20th century—a

transformation lasting 80 to 100 years.[10] Historian Rosemary Stevens described the transformation of the American hospital from a community institution focused on health (especially for lower income populations) to a corporation increasingly focused on wealth—another transformation lasting roughly a century.[11] Three other transformations lasting 50 to 80 years have been the ascendance of third-party payment over out-of-pocket payment, managed care over indemnity, and public over private sources of third-party payment.[12] These precedents set a pretty high bar for what might be labeled a "transformation."

The advent of public and private insurance ushered in FFS payment, an issue addressed in the current transformation. Moral hazard, escalating expenditures that followed insurance coverage, and above-cost FFS payment have bedeviled the industry ever since.[13] During the rise of managed care in the 1990s, payers sought greater cost control and oversight of the quality rendered by providers. The confluence of their roles as both payers and overseers (of quality and quantity) helped to transform "the body and soul of American medicine," set the current stage for discussions of "value," and provided a vehicle for managing it.[14] The Health Security Act prompted horizontal and vertical integration by hospitals in the 1990s (and beyond) in anticipation of the strong managed care that was the core of the Clinton plan.

Figure 2 depicts many decade-by-decade transformations beyond these momentous long-term shifts. The figure is not meant to be comprehensive but illustrative. These shifts include (1) 1910-1920s: the Flexner reforms in medical education, the closure of many medical schools, and the rise of organized medicine and medical specialties; (2) 1930-1940s: the advent of private insurance; (3) 1940-1950s: the advent of biomedical innovation and the National Institutes of Health; (4) 1960s: the enactment of Medicare and Medicaid and the Kefauver-Harris drug amendments; (5) 1970s: the various federal and state regulatory efforts to try to contain rising health care costs (such as certificate of need); (6) 1980s: the prospective payment system and diagnosis-related groups, the rise of outpatient care and ambulatory surgery centers (ASCs), the Hatch-Waxman Act, and competitive market solutions to health care costs (eg, antitrust enforcement); (7) 1990s: the rise of HMOs, managed care, hospital system formations, and disruptive federal legislation (eg, Health Security Act, Balanced Budget Act); (8) 2000s: advent of consumerism, high deductible health plans (HDHPs), Medicare Advantage, and retail clinics; and (9) 2010s: big data and analytics and

Figure 2. Historical Transformations in US Health Care



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additional federal legislation (eg, the Patient Protection and Affordable Care Act [ACA] and Medicare Access and CHIP Reauthorization Act [MACRA]).

Most of these shifts were neither anticipated nor accurately forecasted. Many did not positively transform the health care industry but rather added to its complexity and fragmentation. For example, the shift to outpatient care and ASCs did not reduce the rate of increase in health care spending or improve clinical quality of care; it represented an effort to squeeze the balloon of inpatient costs that, by increasing access and convenience to an alternative setting, led to an increase in outpatient volume and spending. Even with the best of intentions, transformation did not usually result in higher quality at reduced cost. Over much of the past century and through today, health care costs continued to rise faster than growth in gross domestic product (GDP).

Transformation During the 1990s and 2010s: Déjà Vu All Over Again?

A second way to analyze the current transformation is to compare it with more recent historical trends. Figure 3 contrasts changes in payment and provider organization undertaken during the 1990s with those now underway.

The two epochs share many similarities. Both include efforts to organize hospitals into horizontally integrated and vertically integrated networks containing multiple providers. The earlier epoch contained IDNs; the latter includes ACOs. Both also include strategic alliances among hospitals and their medical staffs. The former included PHOs, the most popular alliance vehicle of the decade; the latter includes clinically integrated networks (CINs), which are PHOs on a slightly larger geographic scale. The former included Wall Street–financed physician practice management companies; the latter includes equity-financed models of specialty physician organizations.

The 2 decades similarly promote a continuum of care, narrow provider networks, physician alignment/engagement, population health, and reductions in care/cost variations (which are theorized to represent low-value care). They also commonly share per capita payment to an entity responsible to provide a range of medical services to a designated population. Finally, both decades analyzed the cost-quality relationship,

Figure 3. 1990s and 2010s: History Repeating?

	1990s	2010s
Payment	Capitation	Risk contracting
	Health maintenance organization	Narrow network
	Cost-effectiveness	Value
	Control health care cost inflation	Bend the trend
	Variations in care	Low-value care
	Health status of population	Population health
	Iron triangle	Triple aim
Provider Organization	Integrated delivery network	Accountable care organization
	Physician-hospital organization	Clinically integrated network
	Hospital alliance	Hospital network
	Physician practice management	Physician equity models
	Seamless continuum of care	Care continuum
	Physician alignment	Physician engagement

either in terms of cost effectiveness analysis (1990s) or simultaneous pursuit of a broad array of quality metrics and cost reduction benchmarks (2000s).[15]

If these are indeed parallel developments, why does history seem to be repeating what was regarded as not satisfactory the first time around? One positive interpretation is that the 1990s' solutions were all good ideas but were before their time and lacked the infrastructure and supporting systems to make them work. These supports would include electronic medical records (EMRs), real-time patient information, data analytics, and other innovations. With the development of the latter in the new millennium, payers and providers may be poised to implement the desired changes in a more graceful way with greater effectiveness.

A different interpretation draws on the insight of John Kenneth Galbraith.[16] Galbraith wondered why the lessons from financial crashes were often repeated with nothing learned. He concluded that old ideas get respun by newer generations of managers and policymakers every 20 years as the prior generation (who were chastened enough not to

repeat them) died off or retired, whereas the new generation believed they had developed an innovative new vision.

Which interpretation is correct? The experience of the 1990s showed limited success. The primary vehicles for cost containment were lower payment to providers (with perhaps lower real costs) and saying no to patients. Spending and spending growth both fell for several years as privately insured consumers moved to HMOs. But then the rate of growth returned to its historical level, albeit from a modestly smaller base. Efforts to develop narrow networks using HMOs appeared to lower spending without harming quality, but stumbled due to patient and physician protests (ie, the managed care backlash). Capitation and closed networks never really spread from California to the rest of the country. The new organizational models (eg, IDNs) failed to reduce cost or improve quality. The physician practice management companies exhibited similar disappointing results, with most going bankrupt.[17] Provider efforts to develop a care continuum did not succeed financially owing to the high expense of network development coupled with relatively low revenues from services provided outside the hospital. All else being equal, such results do not bode well for the 2010s' variants whose goal is to permanently reduce the rate of spending growth closer to GDP growth. If true, drawing on a popular blues song by Robert Cray, "the forecast calls for pain."

The 1990s transformation was initiated and implemented by the private sector with the government as a passive observer (that largely resisted calls from physician organizations to intrude). This time around, the government is leading the transformation in public programs (especially Medicare) and legitimizing similar changes in the private sector; this government endorsement has served thus far to protect efforts from earlier criticism about care decisions being based on monetary incentives.

However, the major difference between these 2 epochs is the mantra and ideology of reorganization: the iron triangle versus the triple aim. The iron triangle argued that, faced with constrained resources, societies must make trade-offs among the 3 goals: increased access, higher quality, and lower cost of care.[18] Such trade-offs were occasioned by new technology that increased quality but also drove up health care costs. Since the 2006 passage of health reform in Massachusetts, enhanced state spending on insurance and health care has been accompanied by lower spending on public safety, public health, mental health, education, and

human services.[19] Similar trade-offs have occurred at the household level: increased spending on health insurance and out-of-pocket costs between 1984 and 2014 crowded out spending on housing, entertainment, food, clothing, transportation, and other items.[20,21]

The iron triangle logic also explained how HMOs worked: enrollees traded restricted provider access for lower premiums. HMOs of the 1990s warned that their model was built on narrowing access to providers (and new technology) in order to achieve lower cost and higher quality. By the end of the decade, enrollees and their employers decided they wanted a different solution (ie, preferred provider organization [PPO]) that offered them broader choice at a higher premium. In the full employment economy of the late 1990s, when firms sought to attract scarce labor, both parties did not think the cost savings were worth the hassle.

By contrast, policymakers in the new millennium have advocated the "triple aim"—3 goals to be pursued at the population level: the patient's experience of care (care), population health (health), and per capita spending on health care (cost).[7] Unlike the iron triangle, triple aim advocates did not view these 3 goals as irreconcilable but simultaneously possible in the presence of an "integrator" (eg, ACOs). Moreover, the triple aim viewed waste and inefficiency rather than technology as both the major driver of cost and (low) quality and as subject to change if only data, incentives, and provider attitudes would cooperate.

Successful pursuit of the triple aim by insurers or providers has yet to be empirically demonstrated. CMS built the 3 aims into the Medicare Shared Savings Program (MSSP) scorecard as the quality and efficiency performance measures for ACOs. In doing so, the MSSP challenges providers to deliver on all 3 aims (and perhaps all 3 angles of the iron triangle) simultaneously, using new models of health care delivery (eg, PCMHs, care coordination, and the recent Comprehensive Primary Care Initiative [CPCI]) as the vehicles.[22]

The iron triangle has yielded the stage to the triple aim, but their dueling prognoses of the probability of achieving multiple goals simultaneously surfaced at a Yale University symposium in early 2016.[23] The iron triangle's goals of cost, quality, and access are embodied in frameworks developed by the Commonwealth Fund, the World Bank, and the World Health Organization. They also serve as intermediate goals that drive health outcomes (National Academy of Medicine) that are often used to evaluate the performance of ACOs, national health

systems, and national legislation such as MACRA.[3,24-26] The symposium considered but did not resolve the key question: If low cost and high quality are not synergistic (as the iron triangle suggests), then is the triple aim really achievable? And are provider transformation efforts to improve quality and reduce cost by moving along both axes in vain?

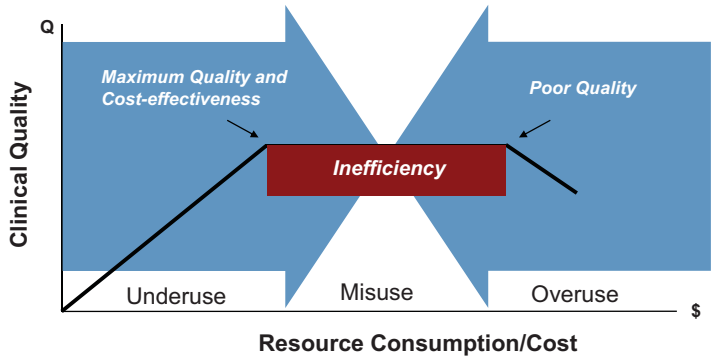
End Goal of Transformation: Higher Quality and/or Lower Cost

One way to answer these questions is to examine the relationship between cost and quality. At the population level, there are conflicting findings. Dartmouth Atlas researchers and others reported a negative relationship in the Medicare population,[27,28] other researchers reported a positive relationship across both Medicare and commercial populations,[29,30] and still others found no relationship.[31-33] A meta-analysis suggests the overall correlation is nearly zero.[34]

Why might this be the case? One possibility is that the aims of higher quality and lower cost are orthogonal. A second possibility is that the data are generated by firms that differ in managerial efficiency so that, although cost and quality trade off in every firm, those firms that choose to produce at high quality are the more efficient, lower-cost firms.[31] A third explanation is that cost and quality have a more complex relationship that sums to zero—perhaps as pictured in Figure 4. This curve reflects 3 types of process measures of quality.[35] The upward slope suggests cost and quality are positively correlated for a range of services that are underused, such as vaccinations, taking prescribed medications (eg, statins or beta blockers for heart disease), guideline-based care, and both preventive and primary care. The downward slope suggests cost and quality are negatively correlated for a different range of services, such as antibiotics for simple infections. The flat part suggests cost and quality are unrelated for another set of services, such as inappropriate medications for the elderly and imaging for low back pain. This explanation is consistent with that offered by both Berwick and other researchers.[7,35,36]

What does this evidence (or lack thereof) mean for transformation efforts? If providers offer highly valued services that patients underutilize, they will have difficulty delivering on higher quality and lower cost at

Figure 4. Cost-Quality Relationship
[Color figure can be viewed at wileyonlinelibrary.com]



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the same time. If the services are worth their higher cost, value will rise, but not if the services add modestly to quality and much to cost. Conversely, if providers reduce low-value services (eg, the "Choosing Wisely" campaign), they may accomplish both cost and quality goals but at the expense of their FFS revenues. Finally, if providers reduce misused services, they can achieve value by lowering cost and perhaps even promoting quality—but perhaps also requiring significant investments in quality improvement that show mixed results.[37]

If organizations receiving capitated payments are profit or owner-value maximizing, the firm's end goal according to economics will be to minimize cost subject to just hitting externally imposed quality constraints. The firm will definitely blow through "triple aim" policies but then, with quality increases now commanding a somewhat higher cost, will further cut some other input costs that would have added to quality, but on dimensions that are less explicit, measurable, or enforceable. The firm would not incur costs for things that leave quality unchanged or reduce it, so it would be "efficient." The key point is that the final observed

pattern could then be one where lower cost is not associated with either higher or lower quality, comprehensively measured.

The inconsistent cost-to-quality relationship further suggests their joint pursuit will require multitasking (and "multiknowledge") by providers to be successful—if someone can discover how to implement such a model, maintain productivity, and avoid the temptation to sacrifice quality for lower cost or higher net revenue. This implies that the strategies needed to address the manifold drivers of cost[38] may differ from those needed to make progress on a large vector of quality measures that may not be correlated with one another.[30,39] Thus, efforts to score well on one quality measure may not work to score well on others. Moreover, their joint pursuit is likely to engender animosity between the quality improvement team and the cost containment team. The "value mindset" would require providers to be aware of and react to the costs and clinical benefits of the quality team's recommendations and to make proper trade-offs between them.[40]

APMs and New Models of Provider Organization: Penetration and Impact

For purposes of definition, APMs cover every payment method that (1) differs from an FFS method that rewards only volume, and (2) seeks to reward providers for taking accountability for cost, quality, or both. HCP-LAN, for example, classified 28 payment models into a continuum of 4 categories: FFS not linked to quality or value, FFS linked to quality or value, APMs built on an FFS chassis, and population-based payment. P4P models, for example, provide an incentive payment for hitting specified quality metrics; shared savings models split savings with providers when they reduce costs below a benchmark and hit quality metrics. New models of provider organization cover everything beyond solo medical practice, freestanding hospitals, and the traditional hospital medical staff (see Figure 1).

APM Penetration

In 2015, the government announced ambitious goals for Medicare provider payments to be based on quality and value.[41] Medicare FFS payments through APMs are to rise to 50% by the end of 2018; the percentage of Medicare payments linked to quality and value are slated

to reach 90%. Shortly thereafter, large private insurers such as UnitedHealthcare, Aetna, and Anthem announced similar plans to transition to APM models.[42,43]

How much have APMs penetrated provider reimbursement? The answer is not straightforward. First, physicians and hospitals are reimbursed by multiple insurers using multiple payment methods. What constitutes an APM payment and its linkage to cost and quality may differ across insurers. The percentage of providers receiving some APM payment differs from the percentage of reimbursements based on APMs. Second, the reported percentage of payer reimbursement to provider organizations (eg, groups) based on APMs often exceeds the percentage of reimbursement to individual physicians in the group based on APMs. Payers report greater readiness to embark on APMs, greater progress toward value-based payment, greater (perceived) positive financial impact of APMs on profitability, and greater provider readiness to implement APMs, compared with what providers report.[44] Third, any payment system can be made attractive to providers if the payment rate is set high enough, but then it will be unattractive to payers. Hence, overall views depend on the level as well as the form of payment under one arrangement compared to another.

What does the evidence show? Two surveys suggested rapid and high penetration. Catalyst for Payment Reform reported that commercial payments based on APMs rose from 11% to 40% between 2013 and 2014.[45] A 2016 survey reported 55% reimbursement based on FFS, 14% based on capitation, 13% based on episodes or bundles, 9% based on P4P, and 8% based on shared savings models (4% each for upside and downside risk).[44]

Three other surveys reported more modest APM penetration. HCP-LAN data from 2015 suggested that 62% of insurer payments are based on FFS, 15% are based on FFS linked to quality or value performance metrics (akin to P4P), and 23% are based on APMs with an FFS chassis or population-based payment.[9] A 2016 physician survey indicated that compensation is tied to quality or value among 43% of physicians; however, 77% said that only a fifth or less of compensation is linked, while 51% said it was less than a tenth.[46] Another survey of 33 large, advanced multispecialty groups found that 66% of payments are FFS, while 34% of payments are "at risk": 2% P4P, 4% shared savings, 2% partial capitation, 3% shared risk, 16% global capitation, and 7% payments from an owned health plan.[47]

Still other surveys suggested lower penetration levels:

- Only 12% of physicians and executives affiliated with the NEJM Catalyst Insights Council surveyed in late 2015/early 2016 reported that their organizations had more than 25% of patient care revenues tied to risk sharing with payers. A majority (56%) of respondents reported risk-sharing revenues below 25%; 20% reported it was 0%. Surprisingly, 32% of respondents did not know what the amount of risk sharing was. With regard to revenues tied to quality improvement, only 15% of respondents said that 25% or more of revenues were so linked; 12% reported it was zero, and another 29% did not know.[48]
- Only 30% of physicians reported receiving any value-based payments in a 2016 Deloitte survey, broken out as follows: episode-based payments (16% of physicians), bundled payments (13%), shared savings (10%), capitation (10%), and shared risk (4%). More than half of physicians indicated that less than 10% of their personal compensation derived from incentive payments tied to cost and quality goals; one-third said they were not eligible; only 6% said they derived more than 20% of compensation from APMs.[49]
- A survey by the American Medical Group Association reported that 2015 payments from commercial payers were heavily dominated by FFS (78%), with small percentages coming from shared savings/ACO models (7%), shared risk (5%), and partial capitation (4%).[50]
- Another study found only small percentages (5%-6%) of inpatient hospital payments at risk under 3 Medicare P4P programs (Hospital-Acquired Condition Reduction, Hospital Readmissions Reduction, and Hospital Value-Based Purchasing) between 2015 and 2017.[51]
- Finally, a national survey of medical practices reported that a mix of salary and FFS productivity models account for the vast majority (90%+) of physician reimbursement; only 5% of compensation was tied to quality or other incentives.[52]

If true, why is the proportion of physician compensation based on APMs apparently so low, given the high percentages of reimbursements based on APMs reported by insurers? Interviews at 34 medical practices

offered one explanation: payers' incentives to the group were not passed on to the individual physicians within it.[53] Physicians were thus shielded from direct exposure to payer risk or reward; moreover, financial incentives passed on to the group were translated into nonfinancial incentives for the individual physician. For example, a group or ACO may pay a contracted physician based on FFS but make renewal of the contract contingent on the physician's impact on total costs of care. The biggest financial incentive for physicians—even in those groups with heavy APM exposure—was to increase FFS productivity by paying based on relative value units (RVUs). In summary, it appears that APMs have had (1) relatively little impact on physician incomes or how they deliver patient care (covered later), and (2) a smaller impact on physician rewards than on rewards to the larger organization in which they practice.

Since the mid-1990s, the percentage of the commercially insured population enrolled in HMOs has fallen, from 31% in 1996 to 15% in 2016.[54] Not surprisingly, the percentage of office visits covered by capitation has also dropped to below 10% across public and private payers.[55] In sum, FFS payment remains the predominant payment model for providers, while APMs are struggling to gain traction and make a difference.[56,57]

Similarly, among hospitals, survey research suggests that only 13 of 80 hospital systems derived more than 10% of net patient revenue from risk-based contracts in 2015.[58] American Hospital Association (AHA) data show the percentage of hospitals reporting any capitated revenue fell from 12.6% to 8.0% between 2003 and 2014. Two-thirds of hospitals reported that they derived less than 1%. Why was the percentage so low? One possibility is that economic surpluses from commercial (and likely non–risk-based) contracts make risk-based contracts less attractive, so hospitals with little excess capacity decline to participate in the latter.

APM Impact on Cost and Quality

Given current low APM penetration and few randomized trials, it is difficult to determine systemwide impacts of APMs on cost and quality. Early evaluations of P4P programs found no impact on hospital quality.[59,60] A meta-analysis of P4P programs reported no positive impact on patient outcomes in any care setting, but did find positive effects on process measures in ambulatory care.[61] Medicare's Hospital

Value-Based Purchasing program likewise exerted no significant impact on quality or the patient's experience of care.[62,63]

Several evaluations of bundled payment suggest mixed effects. The Medicare Participating Heart Bypass Center Demonstration reduced Medicare program spending, beneficiary spending, and hospital costs (relative to controls) in 3 of the 4 initial sites.[64] While demonstration sites reduced mortality rates, there were no significant changes in appropriateness of care or patient health outcomes. The Acute Care Episode Demonstration improved physician collaboration with hospitals on standardizing order sets and materials, as well as on joint negotiations with vendors that reduced implant prices. Medicare saved about $585 per case in the demonstration (mostly through lower implant prices); however, roughly 45% of those savings were offset by increased postacute care spending. The evaluation found little evidence of changes in quality.[65]

The Bundled Payments for Care Improvement Initiative reported "modest reductions in Medicare episode payments for select clinical episode groups with isolated instances of quality declines and fewer instances of increased quality."[66] These findings held for one set of conditions (orthopedic) but not another (cardiovascular surgery). For the most widely adopted bundled payment model (model 2; discussed later), spending reductions were due to lower use of postacute care. The voluntary nature of the program, with self-selected program participants, may limit the ability to infer causation from these findings.[67]

In sum, research suggests the savings under bundled-payment models, when they occur, come primarily from reduced prices paid for inputs or lower use of postacute care, rather than process efficiencies inside the hospital.[68] Bundled payments can thus lead to lower (input) prices and supplier profits and perhaps lower overall spending, which is promising. However, bundled-payment models have yet to show a consistent impact on quality, real inpatient resource costs, or overall resource costs.[69]

Researchers have also noted the difficulties of implementing bundled payments. These include the complexity of execution, the continuing incentive to overtreat, the task of capturing all of the necessary clinical and financial data, issues with prospective payment, the failure by hospitals to increase volume and market share to offset the costs of care redesign, the low return on investment, and the lack of consumer alignment and engagement.[69-72]

Catalyst for Payment Reform executives claimed in 2014 that "the proliferation of value-based payment ... arrangements only matters

if they succeed at reducing costs and improving the quality of care. And for many value-oriented payment models, we still don't have the evidence."[45] Based on the continuing flow of nonsignificant results, some observers have called for a "VBP reboot."[73] Whether evidence that they (1) reduce spending growth while leaving quality unchanged or (2) improve quality with little or no effect on spending will satisfy these observers has also not been determined.

New Models of Practice Organization: Penetration

Physicians

Just as there are difficulties in classifying provider payments based on APMs, there are difficulties in assigning physicians to different organizational models due to the "nesting" of their practices. For example, an individual primary care physician (PCP) can simultaneously be a solo practitioner, a member of one or more local hospital medical staffs, a member of one or more local IPAs and/or PHOs, an attributed PCP to an MSSP-ACO, a member of a CIN, and part of an IDN based on any of the above affiliations. The same may be true of specialists, who can be affiliated with more than one MSSP-ACO. As a result, physicians can have their practice time and patient caseload—and perhaps their attention to quality measures and resource use—distributed across multiple settings. We have little data at the physician level on this distribution, and even less evidence on how it matters for changing physician behavior.

We also lack comprehensive, longitudinal, and national data on the prevalence of many of the older forms of practice organization such as medical groups and physician IPAs, as well as some of the newer forms, such as CINs. Data on physician employment are muddied by the type of owner; the largest class of physician employers are other physicians, not hospitals. The same problem characterizes provider membership in ACOs. ACOs can serve both public and private payers and can be both hospital- and physician-sponsored. ACOs can also have multiple generations (eg, MSSP, Pioneer, Next Generation) and/or multiple tracks (eg, one-sided risk only, two-sided risk, and variable percentages of savings/losses).

What does the evidence show? Among physicians, the percentage in solo practice has fallen sharply over the long term, but declined only

slightly in the past few years (estimates vary). American Medical Association (AMA) data show a drop in solo practitioners from 43.8% in 1983 to 20.0% in 2012[74]; by contrast, National Ambulatory Medical Care Survey data show the percentage of solo physicians falling only modestly, from 34.7% in 1999 to 31.5% in 2010.[75] Other AMA data indicate a recent, narrow decline in solo practitioners from 18.4% in 2012 to 16.5% in 2016.[74,76,77] Combined data from the AMA's Socioeconomic Monitoring System Survey and Physician Practice Benchmark Survey suggest more dramatic change in physician practice size over the longer term (1983-2012) than over the near term (2012-2016).[74,77] For example, the percentage of physicians in groups of 25 or more rose from 5.0% to 19.3% between 1983 and 2012, but then to only 21.2% between 2012 and 2016. Overall, the majority of physicians remain in solo or small practices.[78]

The change in the size distribution of medical groups has also been more (less) dramatic over the long (short) term. According to the AMA's group practice survey, the percentage of groups of 3 to 4 doctors fell from 50.3% to 41.9% between 1998 and 2011, while the percentage of groups of 5 to 9 doctors rose slightly from 33.4% to 37.3%; the percentages in groups of 10 to 49 and 50 or more changed from 14.4% to 18.3% and 1.9% to 8.4%, respectively.[75] Similarly, the percentage in large groups (100+ physicians) remained small and rose only slightly, from 0.7% to 1.1%. The percentage of physicians in group practice remained fairly stable, rising slightly from 28.3% to 33.9%. Data from the Medical Group Management Association (MGMA) showed a slight drop in practices of 10 or fewer doctors between 2004 and 2012 from 63% to 55%, while the percentage of practices with 11 to 25 doctors rose only from 20% to 21%, and the percentage of practices with 26 to 50 doctors rose only from 8% to 9%.[75] There is a trend toward physicians practicing in groups with 151 or more doctors, but the shift is more subtle (from 3% to 7% between 2004 and 2012) than pronounced.

Since 2012, the change in the group size distribution has remained small. According to the AMA's Physician Practice Benchmark Survey, the percentage of physicians in practices smaller than 5 doctors fell from 40.0% to 37.9% between 2012 and 2016. Similarly, the percentage of physicians in practices of 5 to 10 doctors fell from 21.4% to 19.9%; the percentage in practices of 11 to 24 doctors fell from 13.5% to 13.3%; the percentage in practices of 25 to 49 doctors rose slightly from 7.1%

to 7.4%; and the percentage in large practices of 50 or more doctors rose from 12.2% to 13.8%.[77]

There is a trend toward more hospitals employing physicians and more physicians being employed by hospitals. Some employment estimates are probably too high, likely because they include physicians employed by other physicians. For example, Accenture and Credit Suisse estimated that two-thirds of physicians were employed (data for 2013-2014).[79] Avalere Health's analysis of SK&A data suggested 38% of physicians were employed by hospitals in July 2015, up from 26% in 2012—a jump that also seems high.[80]

More likely, the shift in employment has been gradual rather than dramatic. The percentage of hospitals employing physicians rose from 30.3% to 34.7% between 2008 and 2012 and then to 39.7% in 2015.[81] AHA data show a rise in hospital-employed physicians from 70,074 to 122,119 (roughly a seventh of all practicing physicians) between 1998 and 2013.[75] AHA data also show growth in employment slowing, from 14.1% in 2010-2013 to 4.5% in 2013-2015 (data courtesy of Peter Kralovec). AMA data suggest that the percentage of physician practices with at least some hospital ownership rose only slightly, from 23.4% in 2012 to 25.4% in 2016; the percentage of physicians who were direct hospital employees rose from 5.6% to 7.4%.[77]

There are also varying estimates of hospital ownership of physician groups. Data from the National Survey of Physician Organizations show that the percentage of large groups (20+ physicians) owned by hospitals, HMOs, and other corporations rose from just under 26.6% in 2004-2006 to just over 35.6% in 2012-2013; conversely, the percentage of small groups (<20 physicians) so owned rose from 8.3% to 11.3%.[81] This is more in line with MGMA data that show modest growth in hospital ownership of groups, from 8.3% to 13.6% between 2003 and 2012.[75] Data from SK&A indicate that the percentage of physicians in practices owned by hospitals rose from 11.4% to 21.1% between 2008 and 2012.[82]

Hospitals

For their part, hospitals can be simultaneously freestanding institutions, a member of a nonownership-based hospital network or alliance, a member of a CIN, and a member of one or more ACOs. We have no data on the distribution of their patient reimbursements from these different organizations and contracting vehicles.

There has been a continuing, gradual trend toward system membership. Between 2005 and 2015, the proportion of hospitals that belong to systems rose from 55.0% to 65.8%; the percentage of community hospitals belonging to networks rose from 29.5% to 34.5% (data courtesy of Peter Kralovec). Not only are more hospitals now members of systems, but they are also members of larger-sized systems. Between 1998 and 2012, there was a 15.6% drop in freestanding hospitals and a 5.0% increase in hospitals belonging to systems of 2 to 5 facilities, a 10.6% rise in hospitals belonging to systems of 6 to 20 facilities, and a 17.9% rise in hospitals belonging to systems of 21 or more facilities.[83]

Starting in the mid-1990s, there was a long, gradual decline in the percentage of hospitals belonging to physician-hospital strategic alliances such as PHOs, hospital-based IPAs, management services organizations (MSOs), equity models, and foundation models. In 2012, this decline began to reverse as hospitals revisited such vehicles as a possible chassis for ACOs.[84] By 2015, as many as 15% of hospitals featured a PHO (whether an open or closed model). Overall, however, the percentage of hospitals using any of these alliance and ownership models remained constant between 1995 and 2013, averaging around 49%.

With the passage of the ACA, ACOs have developed contracts with both MSSP and commercial payers. First-quarter 2017 data from Leavitt Partners show the number of total ACOs increased to 923, with patient enrollment of 32 million.[84] Roughly half of ACOs are hospital-sponsored; the remainder are mostly physician-sponsored. The spread of ACOs does constitute a large-scale change in the provider landscape—much in the way the spread of IDNs did during the 1990s. They have also grown in enrollment from roughly 2% to 10% of the patient population between 2011 and 2016; ACO enrollment of Medicare beneficiaries has slowed or stalled, especially in comparison to Medicare Advantage.

New Provider Organization Models' Impact on Cost and Quality

There has been considerable research on the cost and quality impact of new models of physician practice, horizontal integration of physicians, horizontal integration of hospitals, vertical integration of hospitals with physicians, and ACOs. Several literature reviews that have amassed these

findings are briefly summarized here and supplemented with more recent evidence.[75,85-87]

With regard to *new models of physician practice*, hospitalists have helped to lower hospital stays and total costs with little change in quality, but perhaps a decrease in care coordination.[88] The wide heterogeneity among PCMHs makes it difficult to draw conclusions about their effects. Research has found positive impacts on quality,[89] no impact on quality,[90] and positive effects on patient compliance with medications.[91] Research has also found few effects on cost or utilization.[90] A recent evaluation of the CPCI model reported increased payments for care coordination to PCPs exceeding $203,000 per practice, modest improvements in patient experience, but no net savings.[92] Many of the delivery system innovations undertaken by the CMS Innovation Center and in the private sector (eg, PCMH) have failed to impact the total cost of care.[93,94]

With regard to *horizontal integration of physicians*, group practices are more productive than solo practitioners. However, the scale economies get exhausted fairly quickly—eg, around 10 physicians for single specialty groups (the most prevalent group form). There are also no scope economies among multispecialty groups. In addition to the lack of cost efficiencies among larger groups, there is no clear evidence that they enjoy any quality advantages.[75]

Equally troubling is the fact that larger practices and structural integration do not foster patient perceptions of "integrated" care.[95] Instead, practice size is associated with higher physician prices without any relationship with quality, total spending, or the patient's experience.[96-98] Part of the problem may be that integrated, multispecialty practice opens up new opportunities for the group to profit under FFS if their PCPs are rewarded for making more referrals to group specialists or to cut corners if they are paid capitation.

With regard to *horizontal consolidation of hospitals*, merging two facilities into one helps to lower costs and increase volumes, but does not necessarily improve quality. On the other hand, consolidating facilities into a single system generally does not lower costs,[99] although one study reports more favorable results.[100] Moreover, system formations may increase costs as systems get bigger and regional in their operation,[101] may lead to greater investments in quality improvement, but may also lower quality of care.[85-87] Why is this the case? Any integration is typically restricted to administrative systems and group purchasing, which

represent only a small percentage of costs; conversely, little integration is achieved on the clinical side, which represents a larger percentage of costs. There is also no effort to consolidate production capacity.

Evidence over several decades continues to suggest that hospital-level scale economies are exhausted at relatively small sizes (fewer than 300 beds). As business historians have noted, scale economies rest on 3 pillars—increased volume, reduced physical capacity, and faster throughput (eg, processing of patients at a faster speed)—none of which hospitals achieve by forming systems.[102] As a result, there are no scale economies in hospital systems; in fact, there may be scale diseconomies as systems form and get larger. There is also consistently no evidence for scope economies among hospitals as they add outpatient services to their inpatient services.[99,103]

Hospital consolidation further suffers from some downsides. These include reduced competition, the ability of systems to extract higher rates from insurers with resulting higher premiums passed onto employers, lower insurance take-up rates by employees in the face of higher premiums, lower resulting levels of insurance, resistance to risk contracting and APMs, and diversion of hospital attention to issues other than quality and cost. Herding a larger number of disparate hospitals can consume a large amount of management effort.

With regard to *vertical integration of hospitals with physicians*, recent studies reinforce the literature reviews. Hospital employment of physicians leads to higher prices for physician services charged to insurers, higher hospital costs, lower quality, lower productivity, and possibly higher readmissions.[104-111] Indeed, there is some evidence that patients of employed physicians are treated at higher cost, lower quality (ie, low value) hospitals and show a higher use of low-value services.[81,112] Why are hospital costs higher? Upon employment, hospitals assume responsibility for the physician's salary and benefits, malpractice coverage, office staff salaries and benefits, office space rental and equipment, and infrastructure investments needed to fulfill Site of Service code 22 (On Campus – Outpatient Hospital) billing requirements. Direct financial incentives to motivate physician productivity are attenuated. There is similarly no strong evidence for cost and quality benefits conferred by membership in physician-hospital strategic alliances (eg, PHOs, IPAs, MSOs).

With regard to *ACOs*, most data pertain to Medicare Pioneer and MSSP-ACOs. Among the Pioneer models, 23 of 32 had dropped out of

the program by the time of its sunset in 2016. Program year 2015 data for the remaining 12 participants showed an average savings of $2.7 million; however, of the $34 million earned, one ACO accounted for 72% of the savings.[84] Between 2012 and 2014, many showed improvement on the 30-plus quality metrics, but less than 30% sufficiently reduced costs to earn shared savings.

Roughly half of the ACOs reduced spending. The percentage of ACOs achieving savings was correlated with earlier start years and benchmark levels per beneficiary. ACOs led by physicians achieved a higher savings rate compared to hospital-led ACOs; smaller ACOs (with a mean number of beneficiaries less than 10,000) achieved greater net savings per beneficiary than larger ACOs. The relatively small size of ACOs, and thus the relatively low percentage of providers' patients who have been attributed to the ACO, provides only weak incentives to pursue hospital-wide strategies to reduce costs that might have spillovers to non-ACO patients.

The ACO movement has also been beset by notable failures and continuing dropouts among the newer-generation models. Cornerstone Health Care constituted one of the few ACOs that succeeded in achieving both higher quality and lower cost compared to its peers. It was also explicitly modeled on the premise of achieving the transformation from (1) volume to value and (2) FFS to population health.[113] By December 2016, however, Cornerstone had ceased to operate as an independent entity, plagued by the amount of personal debt assumed by its physicians to finance the ACO's infrastructure, as well as the defection of 70 of its specialists after HHS Secretary Sylvia Mathews Burwell announced her payment initiative in 2015.[114]

ACO analysts have engaged in an interesting exchange on the savings potential of ACOs. In August 2016, CMS pronounced it had reaped $1.29 billion in total savings from Pioneer and MSSP models since 2012, with $429 million savings in 2015. That same month, Harvard researchers replied that half of the ACOs made money while half lost money in 2015. After paying providers their bonuses, CMS lost a net of $216 million, which did not include CMS program costs.[115] In September 2016, Leavitt Partners reported lots of variation in ACO cost and quality, and that quality was unrelated to both spending and savings. The savings rate was tied to the benchmark rate. Moreover, several managed care veterans (eg, Dartmouth, Sharp) dropped out of the ACO program. In October 2016, other Harvard researchers reported

savings of $287 million in 2014.[116] Savings totaled $685 million after taking into account estimated spillover effects to non-ACO patients and reduced Medicare Advantage costs due to lower benchmarks; as noted above, spillovers in smaller ACOs may be questionable.

By the end of 2016, MedPAC commissioners called the MSSP savings "incredibly unsatisfying." According to the HHS, these savings totaled nearly $1 billion, or roughly 0.15% of Medicare spending. In Summer 2017, ACO analysts engaged in a second heated exchange on many of the same issues.[117]

On the Medicaid side, a recent evaluation of Oregon's Coordinated Care Organization model showed some improvements in patient access and quality, but minimal cost savings. This is particularly noteworthy given the large amount invested in the program.[118]

What none of these analyses addressed was how much money, time, and energy providers had to invest upfront in ACOs to reap these savings. According to the National Association of ACOs survey, ACOs spent an average of $1.62 million to participate in the MSSP.[119] This is much lower than the amount ($11.6 million to $26.1 million) estimated by the AHA.[120] Part of the difference may lie in the sample of organizations studied by the 2 groups (eg, heavily weighted by physician groups vs hospitals).

Recent research suggests that ACOs achieve savings in nonhospital, nonphysician care. In one study, hospitals affiliated with ACOs achieved lower readmissions from skilled nursing facilities than non-ACO-affiliated hospitals.[121] In another study, ACOs reduced admissions and stays to postacute sites without harming quality.[122] There were no changes in hospital readmissions or mortality. These results suggest the ACOs' incentives rest on reducing services not provided in-house rather than on reducing hospital utilization.

The mixed ACO results parallel those of its progenitor, the Medicare Group Practice Demonstration. The demonstration employed a shared savings model built on P4P whereby groups would enjoy savings if they lowered cost relative to local controls and scored well on 32 quality metrics. Results across the 10 demonstration sites showed improvement on quality but mixed results on cost. A small number of sites achieved most of the savings; their efficiencies were counterbalanced by a lack of savings at the other sites.[123,124] Most of the savings were concentrated among dual-eligible beneficiaries—suggesting the possible need to target such initiatives to narrow population segments.

Going forward, only 42 of the 480 MSSP-ACOs are in tracks that qualify as "advanced APMs"—6 are in Track 2 (two-sided risk, up to 60% savings and no less than 40% of losses), and 36 are in Track 3 (two-sided risk, up to 75% savings, 40%-75% losses). The vast majority have avoided any downside risk by remaining in Track 1.[84] Such provider risk-aversion may not bode well for cost containment, let alone quality improvement.

Indeed, there is some evidence that providers may have difficulty managing risk in risk-based contracts. A recent study of 15 nationally prominent IDNs found no relationship between the amount of "revenue at risk" with either profitability or severity-adjusted cost of care. The amount of revenue at risk was actually positively correlated with higher Medicare spending in the last 2 years of life. Compared to their primary in-market competitor, IDN flagship hospitals had higher average costs per case, no meaningful differences in clinical quality measures (eg, readmissions, infection rates, complication rates), and no meaningful differences in either patient satisfaction scores or Leapfrog safety ratings.[125]

Headwinds Facing APMs and New Provider Organization Models

We have had mixed success developing new payment and provider organization models that address cost and quality goals. One way to explain why proposed social changes do not succeed is to draw on "force field analysis": the driving forces behind desired changes face restraining forces that oppose them.[126]

Changes in payment and organization have either been adopted under government pressure, advocated by key opinion leaders, or pursued by providers. There is no individual evidence and no nationwide movement of consumers asking for changes in how their doctors are paid or how their hospitals are organized. Consumers have "voted with their feet" in switching to both Medicare Advantage plans and HDHPs in private insurance markets, organizational forms that are nearly polar opposites of each other. An analysis of the forces restraining new payment and provider models suggests we may need to "curb our enthusiasm" about the purported transformation of the health care industry.

Physician Headwinds

Physicians are an important restraining force to both APMs and new organization models. Physicians prefer FFS over any of the APMs promoted by payers and policymakers.[49] A large percentage of physicians are unaware of how much of their compensation is based on APMs, partly due to low awareness of their eligibility for shared savings and limited knowledge of which patients are attributed to an ACO.[127] This is also partly because ACO financial incentives exist at the contract level, not at the individual physician level, and the fact that practice organizations shield physicians from direct risk-based or quality-based compensation. Practice-level financial incentives are usually transformed into nonfinancial incentives (eg, using performance feedback or selective retention based on quality/efficiency) for individual doctors. There may also be inconsistencies between financial and nonfinancial incentives (eg, RVU productivity vs cut costs) that deter risk transfer, as well as the desire to avoid (1) drastic income reallocation, (2) operational costs of administering complex physician compensation formulas, and (3) imposition of documentation requirements that foster physician dissatisfaction. Were he alive and studying health care, Sigmund Freud might be tempted to retitle his classic *Civilization and Its Discontents* as *Transformation and Its Discontents*.

For all of these reasons, APMs typically have a negligible effect on physicians' income and perceived risk. APMs may also have had a negligible effect on national expenditures for physician and clinical services—given comparable growth rates in 2007 (6.7%), 2015 (6.3%), and 2016 (6.6%).[128]

Physicians are willing to address the issue of waste but see it as someone else's fault and not necessarily under their individual control.[129] This may explain why physicians are (1) averse to moving up the *y*-axis in Figure 1 and contracting for risk they feel they cannot control, and (2) skeptical about new organizational models to improve quality or reduce cost. In 2016, only 8.1% of physicians "mostly agreed" that hospital employment would enhance quality of care and decrease costs, while 25.7% "somewhat agreed" and two-thirds "disagreed."[46] Employed physicians felt more positively (45.7% compared to 33.8% of physicians overall) that employment would enhance quality and decrease costs, but they were still more likely than not to view employment skeptically. Employed physicians were similar to nonemployed physicians in the percentage of their total compensation tied to quality metrics.

With regard to ACOs, only 10.9% of physicians believed that ACOs were likely to enhance quality and/or decrease cost; 38.7% believed ACOs were unlikely to do so; and 22.3% felt the gains in quality or cost would not justify the investment. Only 12.8% of employed physicians felt that ACOs would enhance quality and/or decrease costs. Employed physicians were nearly as likely as nonemployed physicians to report that they participated in a range of APMs such as bundled payments (33.4% vs 29.2%), ACOs (40.5% vs 33.6%), and any other models (14.8% vs 16.6%). Overall, as little as 5% of physician compensation may be at risk for quality and other factors.[52]

Along the same lines, 59.2% of respondents felt they had little ability to significantly affect the health care system; 55.7% of employed physicians echoed this sentiment. Conversely, 72.1% believed that their practice had been adversely affected by external factors such as EMRs and treatment protocols, while only 10.3% felt the impact was little or nothing; nearly the same percentage (70.5%) of employed physicians expressed the same sentiment. Clearly, physician employment did not translate into physician engagement with the intended transformation.

Beyond these sentiments, physician behaviors may undermine both APMs and new organization models. A recent case study highlighted the high rate of physician turnover in the Partners HealthCare ACO.[130] Only 52% of physicians were on contract over the first 3 years of the contract, with large percentages coming and going each year. The downside here is that departing physicians sometimes take their patients (the ACO beneficiaries) with them. This partly explains why ACOs also experience high patient turnover (ie, "population loss").[131] Both types of turnover likely undermine quality, cost, and population health efforts.

Some ACO advocates now suggest that financial incentives currently offered inside new organizational models may be too weak to motivate physicians to change their behaviors and deliver more cost-effective care.[132] According to their argument, ACOs must employ robust nonfinancial motivational strategies to change (in turn): PCPs' behaviors, PCPs' care delivery (eg, using teams, physician champions, data sharing, care coordination), and hopefully their costs, quality, and patient outcomes.[133] Others suggest that only a large-scale shift to capitation can generate enough surplus to finance care improvements.[134] The unanswered question is whether enough physicians will accept such challenges at a low enough price.

A more fundamental issue with physician engagement in transformation is the downward-sloping gradient from the hospital executive office (ie, "C-suite") to clinician leaders to rank-and-file clinicians in their favorable views of transformation. When asked about the impact of value-based care delivery on quality, 62% of executives responded favorably compared to 59% of clinician leaders and only 47% of clinicians. A similar gradient was observed when asked about the impact of APMs (74% vs 67% vs 58%) or the value of Medicaid demonstration programs (51% vs 40% vs 31%). Executives and physicians also differ in their views about how to reduce costs.[48]

The divide separating the C-suite from practicing physicians is based in part on geographic location (hospital system headquarters vs clinical area), hierarchical level, and professional training (eg, MHA/MBA vs MD). The multiple fault lines suggest that alignment and engagement are likely to be difficult and even deteriorating. Surveys show a decrease in physicians reporting intellectual stimulation, collegial interaction, financial rewards, and the prestige of medicine as most satisfying about their practice.[135] These issues may, in turn, cause downstream problems with quality improvement and cost control: disengaged physicians are reportedly a cause of poor quality and medical errors.[136]

Why is this so? Physicians report being on a "treadmill" in their hospital practice: forced to be more productive to avoid stagnating incomes but also faced with rising patient complexity that demands more of their time. They also feel that quality metrics from payers are (1) "the bane of their existence" and/or (2) what managers want to extract from EMRs rather than what doctors or their patients perceive as quality care (eg, listening to patients).[137] With the growing size and bureaucracy of hospital systems, physicians feel that the C-suite is increasingly detached from the reality of frontline medicine and is increasingly focused on data, metrics, and policies (eg, standardization, in-house referrals).[136,138] Some medical groups also have reportedly ditched clinical integration mechanisms (ie, "care management practices") designed to improve quality due to perceived ineffectiveness and the disruption caused to their practices.[139]

There are also reports of growing physician "burnout" at the front line of care delivery caused by the above.[140,141] This dissatisfaction may increase even further as APMs receive greater impetus and the physician supply shortage worsens. Recently, 10 health system executives labeled physician burnout as a "public health crisis."[142] Some analysts have called

for an extension of Berwick's triple aim to encompass "the quadruple aim" of improving the work lives of providers.[143]

Moreover, despite payer efforts to promote value-based purchasing, physicians continue to over- and underutilize care. Part of the problem is staying current with the growing scientific literature. New medical practice that is widely cited is often contradicted by subsequent evidence,[144] but physicians lag in responding.[145] Physicians also make low use of quality or cost data in their referrals.[49]

Patient Headwinds

A parallel concern is that patient beliefs and behaviors can undermine the success of APMs and new organizational models. More than half of the US population assign low importance to their own personal health.[146] A large percentage (35%-45%) of patients are low in terms of "activation": 15%-20% are disengaged and overwhelmed, with another 20%-25% aware but struggling.[147] Activation levels may be even lower among the Medicare population.[148] Activation levels are related to healthy, preventive, and disease-specific self-care behaviors and lower per-capita costs.

Physicians note that few patients are "highly engaged."[149] Nearly half (48%) of executives and clinicians surveyed in one study believe that patient engagement can impact quality, while only 27% believe it can impact cost. However, they also believe that the two most effective mechanisms to activate patients are patient portals and secure emails, which involve no face-to-face interaction.[150] Such interaction is critical to engage the chronically ill in care coordination programs.[151,152] It is not clear that engaging patients using digital technologies or mobile devices will change their behaviors to avoid unhealthy habits, which may ultimately be reflected in higher reported costs and poorer health outcomes. It is also unclear that APMs deal with what patients think is important to them (eg, functional status, depression-free days, convenience).

In addition to patient turnover from ACOs, patients engage in care-seeking behaviors that increase out-of-network utilization (ie, "leakage") that can undermine ACO success. Avoiding such utilization is neither prohibited by ACOs nor part of the patient's psyche, since patients typically don't know they are ACO members. High-cost enrollees also frequently seek care in other census regions, thus exacerbating the cost-containment challenges facing ACOs.[153]

More generally, there is a problem with health literacy. Like physicians, patients may be unaware of what "low-value care" is, let alone be intelligent consumers of high-value care or activated participants, partly because they are not exposed to the cost portion of the value quotient.[154] As much as one-third of patients have difficulty envisioning benefits from avoiding low-value care; among the less educated, the percentage is one-half. One report describes "an unhealthy truth": only 1 in 6 Americans comprehend the magnitude of the problem of chronic disease and its impact on mortality and spending.[155] Another suggests that patients are uncertain how to manage their chronic conditions.[156]

To be sure, there is hope that "consumerism"—in the form of HDHPs, higher deductibles, price transparency, etc—will foster greater shopping and utilization of high-value services. However, results from HDHPs indicate patients restrict all types of utilization (both high-value and low-value care) in order to reduce spending.

There are disturbing reports of falling life expectancy among US white males aged 45 to 54.[157] Researchers suggest growing "despair" driven by stagnant personal incomes, loss of employment, family breakdowns and other sociodemographic challenges, and beliefs that they will not live the same lives as their parents. This despair contributes to poor personal behaviors and lifestyle choices that translate into chronic illness, morbidity, and mortality. Such findings are confirmed by studies documenting unhealthy behaviors among lower-income workers.[158,159]

These reports highlight the importance of the "social determinants of health" and social spending as a strategy to improve health outcomes—rather than payment and organizational initiatives at the center of the current transformation.[160,161] They also emphasize the difficulty of improving health from the supply side in the face of stagnating middle-class incomes and greater disparities in wealth in a slow-growing economy. The "miracle drug" of a high and growing real income is in short supply among much of the population, even with low unemployment.

Political Headwinds

Transformation may face political headwinds as well. The single most disruptive force in US health care may be the federal government and

CMS. They are the parties responsible for many changes charted in Figure 2. Providers and payers are forced to respond to these initiatives without much say in their formulation or implementation.

These changes often lead to industry churn. The push for APMs, embodied initially in P4P and more recently MACRA, sought to deal with the SGR problem in physician payment enacted 20 years ago as part of the Balanced Budget Act (BBA). Congressional reluctance to make an intended 4.8% SGR cut in physician payment in the early 2000s (dictated by BBA) led CMS administrators to advocate for a political solution, which became known as the "doc fix." The solution postponed the annual SGR cut and ushered in P4P, even though there was little research evidence that paying providers to meet specific performance indicators improved quality of care.[162] The subsequent failure of P4P led payers and policymakers to turn to the new strategy of VBP that has now been embodied in MACRA, which terminated the need for an annual doc fix and averted a roughly 25% fee cut in physician payments. MACRA will be phased in over 10 years and will ultimately cause dramatic reductions in physician payment in the traditional Medicare FFS system. Skeptics might argue that this continues a decades-long effort at "kicking the can down the road."

Survey data suggest that half of all specialists do not know what MACRA is; one-third of those who do know only know MACRA by name. Researchers suspect that MACRA's incentives to cut costs or improve quality are too weak.[163] If true, MACRA's impact seems ambiguous.

P4P, VBP, and MACRA may thus have represented political expediency and congressional cover to the thorny issue of dealing with the iron triangle. P4P was a noncontroversial quid pro quo for SGR relief, VBP was reportedly a euphemism for P4P,[56] and MACRA was an obtuse solution to the doc fix. Such initiatives do not really focus on some of the desired objectives (eg, patient-centered care) and will likely spur greater hospital employment of physicians and hospital system formations—which will increase costs and possibly harm quality. Other researchers have recently commented that other popular policy solutions such as care coordination may also represent a politically expedient, but ultimately unsuccessful, strategy to contain rising health care costs.[164]

This should be obvious to all: APMs and new organizational models are not the only, let alone the main, drivers of cost levels or cost growth. They are also not the main drivers of quality, and they surely are not the

drivers of health status. Indeed, quality improvement activities typically are based on process changes in how providers work, not on their payment or organization structure.[37,165,166] The 2-axis solution presented in Figure 1 may have some value and be easy to remember, but is too simplistic as an iron triangle or triple aim solution.

Other Headwinds

There are numerous other headwinds. Researchers note that much of the infrastructure required by ACOs may not succeed in improving quality or reducing costs.[167] There is also no great evidence that providers are good at other advocated techniques (eg, collaboration). Indeed, some suggest these efforts be more narrowly focused on the most chronically ill patients, such as the dual-eligibles and the "poly-chronics" (those taking 5 or more medications, the number of which has been increasing since 1999). Most people are in good health, have few unmet clinical needs, incur few expenses, and may be uninterested in frequent interactions with the medical care system.[168] Given finite resources, the system may need to segment the patient population and focus on (1) what drives spending among the group with the highest costs and utilization, and/or (2) where the variations in utilization are that are associated with inappropriate care.

Another headwind is falling hospital revenues. There are many stories of hiring freezes, layoffs, budget cuts, falling incomes, and losses from EMR implementation at many top hospitals.[169-173] How well financially struggling institutions can continue to pursue transformation efforts is uncertain. Some exemplars of ideal organization like Geisinger have turned away from closed network models of care; weakened reliance on their own in-house health plan to embrace PPO models; and increased surgical procedures under an FFS, volume-based model.[174]

Prognosis and Prescription for Transformation

In sum, there is only meager evidence that the United States is very far on either axis of the transformation path in Figure 1, although evidence is stronger for provider reorganization. The movement to APMs may stall at the stage of bundled payments since physicians do not want to assume full capitation-based, professional services risk. Instead,

they may still prefer to be paid essentially FFS but with external penalties and rewards, many of them nonmonetary. A full-throated financial incentive system relying on individual physicians to respond like profit-maximizing agents (the core model for APMs) may not be in the cards any time soon. Moreover, this transformation in payment does not accurately characterize all types of health care, as bundled payments are more prevalent for certain surgical procedures (ie, orthopedics) but less so for oncology patients.[175] If it does occur, the payment transformation will be gradual over time and encompass some rather than all medical-surgical conditions.

Is transformation inevitable? Greater use of APMs may lower provider reimbursements that occasion more cuts in provider budgets and personnel that make transformation more difficult to staff and execute. Hospitals may be forced to shift attention from transformation to basic "blocking and tackling" cost containment strategies—eg, shortening lengths of stay, reducing unnecessary admissions by the use of rules and protocols imposed from above—that hearken back to the efforts by impolite and unpopular HMOs in the 1990s.

So what are the prospects and what are the options for managing whatever will come from transformation? One possibility is to anticipate *resignation* to a future in which spending continues to outpace income and quality only holds its own as transformation fails to make an impact. That this result is heartily undesired by all does not make it impossible. Spending can continue to grow at its current pace (with at least the dividend of better new technology) as long as real income grows. The doomsday prophecy that "medical care costs are increasing so fast that no one can afford them" is mildly preposterous, since, if no one can or will spend more, spending cannot rise. There will, following Stein's law, eventually be a slowdown, even if at a higher share of spending on medical care and a lower share on other things than at present.

The challenges in this scenario are two-fold. One is that the intense desire to change things quickly that cannot be changed may lead to regulation, frustration, false promises and the associated waste, and political turmoil that a more realistic evaluation of the prospects could avoid. Rather than grasping at straws, a policy of keeping an open door for new innovations (whatever the source) may be superior to planning what cannot be successfully planned. One feature of such a policy would be to permit, even encourage, insurers to develop new methods for allocating resources and organizing physicians without handicapping

one form or another; let consumer choice in the insurance market work it out. The other challenge is that we do not yet know the mechanism by which the inevitable slowdown will be accomplished, with attendant worry and impatience, until it shall appear.

Another more optimistic view is that a *better-targeted strategy* than current policy might work. Rather than focus on replacing FFS payment to organizations (which has not been shown to accelerate spending despite its poor reputation), one might focus on 2 things mentioned above: (1) getting physicians to change behavior and (2) shifting focus to new technology (rather than fixate on old but stubborn waste that has been around for years). Here, again, current evidence does not endorse a particular strategy to deal with these problems, but greater focus on them, while avoiding prohibitions on rationing or contracting (with physicians or consumers), might be wise.

A third strategy is to *count on small steps.* That seems to be all that can be expected from current transformation models, but perhaps 1 percentage point lower cost from ACOs, added to a couple of points from bundled payment, might someday add up to real money. The challenge here is the limited bite these measures can take out of the "one-third of all spending is waste." If these changes could shave percentage points off spending growth rates rather than levels (what the HMOs of the 1990s failed to do), that would amount to something over time.

The final strategy is to *hope for the big one.* We do not know yet what it might be, but there is always the possibility that someone, somewhere, will invent a method of payment or management that can slow spending growth appreciably without harming quality. We suspect that it will have to affect physicians and technology.

Are there more concrete ways to pursue these options? As part of the first option, given its prevalence and popularity among physicians, we may need to stop bashing FFS models and look for ways to retool this payment method. As noted above, the FFS chassis underlies many of the APMs now being pushed (including those in MACRA). FFS may perform better if we diminish the incentive for volume by reducing excessive fee levels and better linking payment schedules to the underlying total costs of production.[176]

With the rapid growth of HDHPs that almost all pay FFS and require patient consent to bearing the cost, FFS may get a new lease on life. At present, the ideal of coordinated care fits poorly with consumers paying something per unit of service. Would consumers be willing to pay

out-of-pocket for coordinating services? The growth of concierge medicine suggests the answer is yes, but designing a coordinated care model that offers the right out-of-pocket payment signals to patients to seek out and partake in coordination is a serious and so far untackled challenge.

As part of the second and third options, provider reorganization is likely a gradual, even glacial, process that gives physicians time to get used to the idea; it is not a recent, radical change. Trends in larger practice size and hospital system formation have been occurring slowly for decades. The problem is that, so far, such consolidation is associated with higher costs and doubtful improvements in quality, contrary to what transformation advocates envision. When the bargain-basement Mayo Clinic or Geisinger emerges, we will know there is hope.

Conclusion

The preceding review is not meant as a negative screed but instead a critical evaluation of current trends. There can nevertheless be benefits of a *via negativa* approach that identifies what we know doesn't work so we can focus on the handful of things that might.[177] The 2-axis approach may not be the correct approach to solve either the iron triangle or the triple aim.

We may need to reorient our attention to other 2-axis solutions that serve as the bedrock of the health care system. As part of a targeted approach, the first is the doctor-patient relationship.[178] Christensen and colleagues pointed this out several years ago, predicting that ACOs could not succeed without changes in the behavior of both physicians and their patients.[179] It is not clear, however, how to get both to behave and work together better. Practice guidelines may work better than financial incentives to alter physician behavior, but they suffer problems with credibility and adoption. Models that assume the sole prod to greater effectiveness is financial rewards to physicians may need to add more tools with rounded edges to be acceptable. Some analysts suggest we focus on changing the mindsets of both the patient and physician to increase the effectiveness of care, if only we knew the treatment for mindset change.[180]

A second 2-axis solution for this focus addresses the complex physician-hospital relationship.[181] Spending variations are higher across

physicians than hospitals, but we need to target both to reduce wasteful spending.[33] This seems sensible given that most physicians concentrate most of their practice in one hospital, but less sensible since PCPs have less and less to do with the hospital. While the extended hospital medical staff, and thus the ACO, recognize this truth, they have not been successful at changing the behavior of either party inside the institution. Decades-long research on improving physician-hospital relationships has yielded a lot of consistent findings—particularly on the importance of improving the process of their interactions. However, findings that leadership and culture influence physician behavior does not offer much of a guide as to what hospitals can do in the short term. Delivery organizations with excellent processes—such as Intermountain Healthcare—took decades to develop such capabilities.[182] Intermountain is an interesting case to study, since it demonstrates that successful change may be more gradual, organic, and bottom-up—rather than dramatic, driven by national policy changes, and imposed top-down.

The findings that some APMs (like bundled payment) and some organizational models (like ACOs) derive much of their savings from spending outside of the hospital's walls (eg, postacute care and surgical implants) rather than inside highlight the untapped potential of this 2-axis approach. Moreover, in most hospitals, physicians are still subject to the free rider problem in ordering inputs that are of no cost to them and do not reduce the payments they get—and some people (more than others) are natural, free-spirited, free riders.

In conclusion, analysts and advocates may need to come to terms with the likelihood that the triple aim cannot be achieved over the long term. Rising real incomes for consumers and technical progress in discovering health-improving but cost-increasing new technologies may mean that cutting spending growth rates much further is not a practical goal. We may need to have more realistic expectations that, for example, the kind of high-value but cost-increasing care that led to dramatic improvements in cardiovascular health may be the best we can expect, and along with these improvements we should expect continuation of spending growth at an uncomfortable but not breakaway pace. While the middle class with private insurance may be able to deal with such a future, low-income people and public programs (even for well-off seniors) may be harder pressed. Such improvements in net value, even though they fail

to meet all wishes, should perhaps not be deprecated but celebrated by the middle class.

The transformation from "volume to value" in health care at this point appears to be driven more by ideology and aspiration than by evidence. To date, APMs show limited improvements in quality and even more limited reduction in costs. If improving quality does not consistently lead to lower costs but only to better health outcomes, we need to rethink the triple aim, tolerate a time when we get more health than wealth, and continue to search for other undiscovered strategies of cost containment. These might include efforts to modify physician behavior, encourage more innovation through Medicare Advantage plans, and target specific patient populations. This will not come easily. Physician integration and changing patient-physician behavior are skill sets that are in short supply and/or hard to acquire. We may also need to draw more heavily on the numerous experiments conducted over the past years by private providers (eg, Intermountain) and insurers and hope to find ways to replicate or franchise them outside their original setting. We can look at CMS activities (through its Innovation Center) and be guided by evidence when some work. These realistic strategies are likely to be a better guide than overly optimistic transitional ideologies.

References

1. Miller HD. *From Volume to Value: Transforming Health Care Payment and Delivery Systems to Improve Quality and Reduce Costs*. Recommendations of the 2008 NRHI Healthcare Payment Reform Summit. Pittsburgh, PA: Network for Regional Healthcare Improvement; 2008.
2. Porter ME, Lee TH. From volume to value in health care: the work begins. *JAMA*. 2016;316(10):1047-1048.
3. Commonwealth Fund. *Framework for a High Performance Health System for the United States*. New York, NY: Commonwealth Fund; 2006.
4. Shih A, Davis K, Schoenbaum S, Gauthier A, Nuzum R, McCarthy D. *Organizing the US Healthcare Delivery System for High Performance*. Commonwealth Fund Pub. No. 1155. New York, NY: Commonwealth Fund; 2008. http://www.commonwealthfund.org/usr_doc/Shih_organizingushlt caredeliverysys_1155.pdf. Accessed November 27, 2017.

5. Porter ME, Teisberg E. *Redefining Health Care: Creating Value-Based Competition on Results*. Boston, MA: Harvard Business School Publishing; 2006.
6. Fisher E, Staiger D, Bynum J, Gottlieb D. Creating accountable care organizations: the extended hospital medical staff. *Health Aff (Millwood)*. 2007;26(1):w44-w57.
7. Berwick D, Nolan T, Whittington J. The triple aim: care, health, cost. *Health Aff (Milwood)*. 2008;27(3):759-769.
8. Lee T, Berenson R. The organization of health care delivery: a roadmap for accelerated improvement. In: Center for American Progress and the Insitute on Medicine as a Profession. *The Health Care Delivery System: A Blueprint for Reform*. Washington, DC: Center for American Progress; 2008. https://cdn.americanprogress.org/wp-content/uploads/issues/2008/10/pdf/health_delivery_full.pdf. Accessed November 27, 2017.
9. Mitre Corporation. Measuring Progress: Adoption of Alternative Payment Models in Commercial, Medicare Advantage, and State Medicaid Programs. Washington, DC: Health Care Payment Learning & Action Network; 2016.
10. Starr P. *The Social Transformation of American Medicine*. New York, NY: Basic Books; 1982.
11. Stevens R. In *Sickness and in Wealth: American Hospitals in the Twentieth Century*. New York, NY: Basic Books; 1989.
12. Morrissey MA. *Health Insurance*. Chicago, IL: Health Administration Press; 2008.
13. Finkelstein A. The aggregate effects of health insurance: evidence from the introduction of Medicare. *Q J Econ*. 2007;122(1):1-37.
14. Fuchs V. Managed care and merger mania. *JAMA*. 1997;277(11):920.
15. Cutler D, Rosen A, Vijan S. The value of medical spending in the United States, 1960-2000. *N Engl J Med*. 2006;355:920-927.
16. Galbraith JK. *A Short History of Financial Euphoria*. Knoxville, TN: Whittle Books; 1990.
17. Reinhardt U. The rise and fall of the physician practice management industry. *Health Aff (Millwood)*. 2000;19(1):42-55.
18. Kissick W. *Medicine's Dilemmas*. New Haven, CT: Yale University Press; 1994.
19. Massachusetts Health Policy Commission. *2013 Cost Trends Report*. Boston, MA: Health Policy Commission; 2014. http://www.mass.gov/anf/docs/hpc/2013-cost-trends-report-full-report.pdf. Accessed November 27, 2017.

20. Levy H, DeLeire T. What do people buy when they don't buy health insurance and what does that say about why they are uninsured? *Inquiry*. 2008;45(4):365-379.
21. Schanzenbach D, Nunn R, Bauer L, et al. *Where Does All the Money Go: Shifts in Household Spending Over the Past 30 Years*. Hamilton Project. Washington, DC: Brookings Institution; 2016.
22. Phillips R. Investment in primary care is needed to achieve the triple aim. *Health Affairs Blog*. May 10, 2017. https://www.healthaffairs.org/do/10.1377/hblog20170510.060008/full. Accessed November 27, 2017.
23. Sage W. New Health Care Symposium: Physicians and the new health care industry—benefits of generational change. *Health Affairs Blog*. March 1, 2016. https://www.healthaffairs.org/do/10.1377/hblog20160301.053479/full. Accessed November 27, 2017.
24. Hsiao W. *What Is a Health System? Why Should We Care*? Cambridge, MA: Harvard School of Public Health; 2003.
25. Goldman D, McGlynn E. *US Health Care: Facts About Cost, Access, and Quality*. Santa Monica, CA: Rand Corporation; 2005.
26. Schneider E, Hall C. Improve quality, control spending, maintain access—can the merit-based incentive payment system deliver? *N Engl J Med*. 2017;376:708-710.
27. Wennberg J, Brownlee S, Fisher E, et al. *Improving Quality and Curbing Health Care Spending: Opportunities for the Congress and the Obama Administration*. Lebanon, NH: The Dartmouth Institute for Health Policy and Clinical Practice; 2008.
28. Birkmeyer JD, Gust C, Dimick J, et al. Hospital quality and the cost of inpatient surgery in the United States. *Ann Surg*. 2012;255(1):1-5.
29. Cooper R. States with more health care spending have better-quality health care: lessons about Medicare. *Health Aff (Millwood)*. 2009;28(1):w103-w115.
30. McKellar M, Landrum M, Gibson T, et al. Geographic variation in quality of care for commercially insured patients. *Health Serv Res*. 2017;52(2):849-862.
31. Yasaitis L, Fisher E, Skinner J, Chandra A. Hospital quality and intensity of spending: Is there an association? *Health Aff (Millwood)*. 2009;28(4):w566-w572.
32. Newhouse JP, Garber A. Geographic variation in Medicare services. *N Engl J Med*. 2013;368(16):1465-1468.

33. Tsugawa Y, Jha A, Newhouse J, et al. Variation in physician spending and association with patient outcomes. *JAMA Intern Med*. 2017;177(5):675-682.
34. Hussey PS, Wertheimer S, Mehrotra A. The association between health care quality and cost. *Ann Intern Med*. 2013;158(1):27-34.
35. Kale M, Bishop T, Federman A, et al. Trends in the overuse of ambulatory health care services in the United States. *JAMA Intern Med*. 2013;173(2):142-148.
36. McGlynn EA, Asch S, Adams J, et al. The quality of health care delivered to adults in the United States. *N Engl J Med*. 2003;348(26):2635-2645.
37. Nembhard IM, Alexander JA, Hoff TJ, Ramanujam R. Why does quality of health care continue to lag? Insights from management research. *Acad Manag Perspect*. 2009;23(1):24-42.
38. Aaron H, Ginsburg PB. Is health spending excessive? If so, what can we do about it? *Health Aff (Millwood)*. 2009;28(5):1260-1275.
39. Reinhardt U. *Sense and Nonsense in Defining "Value" in Health Care*. Talk presented at: Capitol Hill Briefing: The Future of Health Care in America; October 5, 2016; Washington, DC. https://www.nihcm.org/events/recent-events?task=download&collection=presentation_slide_x&xi=4&file=presentation_slide&id=660. Accessed November 27, 2017.
40. Werner RM, Bradlow E. Relationship between Medicare's Hospital Compare performance measures and mortality rates. *JAMA*. 2006;296(22):2694-2702.
41. Burwell S. Setting value-based payment goals—HHS efforts to improve US health care. *N Engl J Med*. 2015;372(10):897-899.
42. Japsen B. UnitedHealth, Aetna, Anthem near 50% value-based care spending. *Forbes*. February 2, 2017. https://www.forbes.com/sites/brucejapsen/2017/02/02/unitedhealth-aetna-anthem-near-50-value-based-care-spending/#21a381a71d4e.
43. Japsen B. Anthem Blue Cross nears 60% value-based care spend. *Forbes*. April 27, 2017. https://www.forbes.com/sites/brucejapsen/2017/04/27/anthem-blue-cross-nears-60-value-based-care-spend/#1fd48bfa6fe7. Accessed November 27, 2017.
44. McKesson Health Solutions. *Journey to Value: The State of Value-Based Reimbursement in 2016*. Newton, MA: McKesson Corporation; 2016. http://mhsinfo3.mckesson.com/rs/834-UAW-463/images/VBR-Study-2016v112016.pdf. Accessed November 27, 2017.

45. Delbanco S. The payment reform landscape: value-oriented payment jumps, and yet. . . . *Health Affairs Blog*. September 30, 2014. http://healthaffairs.org/blog/2014/09/30/the-payment-reform-landscape-value-oriented-payment-jumps-and-yet. Accessed November 27, 2017.
46. The Physicians Foundation/Merritt Hawkins. *2016 Survey of America's Physicians: Practice Patterns and Perspectives*. Coppell, TX: The Physicians Foundation/Merritt Hawkins; 2016. http://www.physiciansfoundation.org/uploads/default/Biennial_Physician_Survey_2016.pdf. Accessed November 27, 2017.
47. Mechanic R, Zinner D. Risk contracting and operational capabilities in large medical groups during national health care reform. *Am J Manag Care*. 2016;22(6):441-446.
48. Dafny L, Lee TH. New marketplace survey: physicians and hospitals differ on how to reduce costs. *NEJM Catalyst*. March 3, 2016. https://catalyst.nejm.org/new-marketplace-report-physicians-and-hospitals-differ-on-how-to-reduce-costs. Accessed November 27, 2017.
49. Value-based care: winning the shift from volume to value. Deloitte website. https://www2.deloitte.com/us/en/pages/life-sciences-and-health-care/articles/value-based-care-life-sciences-and-health-care-services.html. Published 2016. Accessed November 27, 2017.
50. American Medical Group Management Association. *AMGA Survey on Risk Readiness*. Alexandria, VA: AMGA; 2015.
51. Kahn CN, Ault T, Potetz L, Walke T, Chambers J. Assessing Medicare's hospital pay-for-performance programs and whether they are achieving their goals. *Health Aff (Millwood)*. 2015;34(8):1281-1288.
52. Ryan A, Shortell SM, Ramsay P, Casalino L. Salary and quality compensation for physician practices participating in accountable care organizations. *Ann Fam Med*. 2015;13(4):321-324.
53. Friedberg M, Chen P, White C, et al. *Effects of Health Care Payment Models on Physician Practice in the United States*. Santa Monica, CA: Rand Corporation; 2015.
54. Kaiser Family Foundation. *2016 Employer Health Benefits Survey*. Washington, DC: Kaiser Family Foundation; September 14, 2016. http://kff.org/health-costs/report/2016-employer-health-benefits-survey. Accessed November 27, 2017.
55. Zuvekas S, Cohen J. Paying physicians by capitation: is the past now prologue? *Health Aff (Millwood)*. 2009;29(9):1661-1666.

56. Zuvekas S, Cohen J. Fee-for-services, while much maligned, remains the dominant payment method for physician visits. *Health Aff (Millwood)*. 2016;35(3):411-414.
57. Berenson R. *Transforming Primary Care: The Role of Payment Policy*. Presented at: NCQA and John A. Hartford Foundation Policy Briefing; July 25, 2014; Washington, DC. http://www.johnahartford.org/images/uploads/resources/NCQA-Hartford_Berenson_Slides.pdf. Accessed November 27, 2017.
58. Barkholz D. Under construction: risk-based reimbursement. *Mod Healthc*. 2016;46(25):14-16,18.
59. Mullen KJ, Frank RG, Rosenthal M. Can you get what you pay for? Pay-for-performance and the quality of health care providers. *RAND J Econ*. 2010;41(1):64-91.
60. Jha A, Joynt K, Orav EJ, Epstein A. The long-term effect of Premier pay for performance on patient outcomes. *N Engl J Med*. 2012;366(17):1606-1615.
61. Mendelson A, Kondo K, Damberg C, et al. The effects of pay-for-performance programs on health, health care use, and processes of care. *Ann Intern Med*. 2017;166(5):341-353.
62. Government Accountability Office. Hospital Value-Based Purchasing: Initial Results Show Modest Effects on Medicare Payments and No Apparent Change in Quality-of-Care Trends. Washington, DC: GAO; 2015.
63. Papanicolas I, Figueroa J, Orav EJ. Patient hospital experience improved modestly, but no evidence Medicare incentives promoted meaningful gains. *Health Aff (Millwood)*. 2017;36(1):133-140.
64. Health Care Financing Administration. *Medicare Participating Heart Bypass Center Demonstration*. Washington, DC: HCFA; 1998.
65. Centers for Medicare & Medicaid Services. *Evaluation of the Medicare Acute Care Episode (ACE) Demonstration: Final Evaluation Report*. Washington, DC: CMS; 2013.
66. Dummit L, Marrufo G, Marshall J, et al. CMS Bundled Payments for Care Improvement Initiative Models 2–4: Year 2 Evaluation & Monitoring Annual Report. Falls Church, VA: Lewin Group; 2016.
67. Fisher E. Medicare's bundled payment program for joint replacement: promise and peril. *JAMA*. 2016;316(12):1262-1264.
68. Navathe A, Troxel A, Liao J, et al. Cost of joint replacement using bundled payment models. *JAMA Intern Med*. 2017;177(2):214-222.
69. Hussey P, Mulcahy AW, Schnyer C, Schneider EC. *Bundled Payment: Effects on Health Care Spending and Quality. Closing the*

Quality Gap: Revisiting the State of the Science. Evidence Report No. 208. Washington, DC: Agency for Health Research and Quality; 2012.

70. Caillouette J, Robinson JC. The "failure" of bundled payment: the importance of consumer incentives. *Health Affairs Blog*. August 21, 2014. https://www.healthaffairs.org/do/10.1377/hblog20140821.040928/full. Accessed November 27, 2017.
71. Ridgely MS, de Vries D, Bozic K, et al. Bundled payment fails to gain a foothold in California: the experience of the IHA bundled payment demonstration. *Health Aff (Millwood)*. 2014;33(8):1345-1352.
72. Williams T, Yegian J. Bundled payment: learning from our failures. *Health Affairs Blog*. August 5, 2014. https://www.healthaffairs.org/do/10.1377/hblog20140805.040596/full. Accessed November 27, 2017.
73. Jha A. Value-based purchasing: time for reboot or time to move on? *JAMA Forum*. March 21, 2017. http://jamanetwork.com/journals/jama/fullarticle/2612603. Accessed November 27, 2017.
74. Kane C. *Policy Research Perspectives: Updated Data on Physician Practice Arrangements; Inching Toward Hospital Ownership*. Chicago, IL: American Medical Association; 2015. https://www.m3globalresearch.com/img/resources/AMA_PRP_Physician_Practice_Arrangements.pdf. Accessed November 27, 2017.
75. Burns LR, Goldsmith J, Sen A. Horizontal and vertical integration of physicians: a tale of two tails. In: Friedman L, Friedman LH, Goes J, Savage GT, eds. *Annual Review of Health Care Management: Revisiting the Evolution of Health System Organization*. Advances in Health Care Management, vol 15. Bingley, UK: Emerald Group Publishing; 2013:39-117.
76. Kane CK, Emmons DW. *Policy Research Perspectives: New Data on Physician Practice Arrangements; Private Practice Remains Strong Despite Shifts Toward Hospital Employment*. Chicago, IL: American Medical Association; 2013. http://www.nmms.org/sites/default/files/images/2013_9_23_ama_survey_prp-physician-practice-arrangements.pdf. Accessed November 27, 2017.
77. Kane CK. *Policy Research Perspectives: Updated Data on Physician Practice Arrangements; Physician Ownership Drops Below 50 Percent*. Chicago, IL: American Medical Association, 2017.

78. Capps C, Dranove D, Ody C. Physician practice consolidation driven by small acquisitions, so antitrust agencies have few tools to intervene. *Health Aff (Millwood)*. 2017;36(9):1556-1563.
79. Ficery K, Kushner K. *The (Independent) Doctor Will Not See You Now*. Chicago, IL: Accenture; 2015. https://www.accenture.com/_acnmedia/PDF-2/Accenture-The-Doctor-Will-Not-See-You.pdf#zoom=50. Accessed November 27, 2017.
80. Physicians Advocacy Institute. *Physician Practice Acquisition Study: National and Regional Employment Changes*. Chicago, IL: Physicians Advocacy Institute; 2016.
81. Bishop T, Shortell SM, Ramsay P, Copeland K, Casalino L. Trends in hospital ownership of physician practices and the effect on processes to improve quality. *Am J Manag Care*. 2016;22(3):172-176.
82. Baker LC, Bundorf MK, Devlin A, Kessler D. Hospital ownership of physicians: hospital versus physician perspectives. *Med Care Res Rev*. 2016. https://doi.org/0.1177/1077558716676018.
83. Dafny L, Ho K, Lee T. *Effects of Cross-Market Combinations: Theory and Evidence from Hospital Markets*. Presented at: FTC Healthcare Workshop; February 25, 2015; Washington, DC.
84. Muhlestein D, Saunders R, McClellan M. Growth of ACOs and alternative payment models in 2017. *Health Affairs Blog*. June 28, 2017. https://www.healthaffairs.org/do/10.1377/hblog20170628.060719/full. Accessed November 27, 2017.
85. Vogt W, Town R. *How Has Hospital Consolidation Affected the Price and Quality of Hospital Care?* Washington, DC: Robert Wood Johnson Foundation Synthesis Project; 2006.
86. Tsai T, Jha A. Hospital consolidation, competition, and quality: is bigger necessarily better? *JAMA*. 2014;312(1):29-30.
87. Gaynor M, Town R. *The Impact of Hospital Consolidation*. Washington, DC: Robert Wood Johnson Foundation Synthesis Project; 2012.
88. White H, Glazier R. Do hospitalist physicians improve the quality of inpatient care delivery? A systematic review of process, efficiency, and outcome measures. *BMC Medicine*. 2011;9(1):58.
89. Han B, Yu H, Friedberg M. Evaluating the impact of parent-reported medical home status on children's health care utilization, expenditures, and quality: a difference-in-differences analysis with causal inference methods. *Health Serv Res*. 2017;52(2):786-806.
90. Friedberg M, Schneider E, Rosenthal M, et al. Association between participation in a multipayer medical home

intervention and changes in quality, utilization, and costs. *JAMA*. 2014;311(8):815-825.

91. Lauffenburger JC, Shrank WH, Bitton A, et al. Association between patient-centered medical homes and adherence to chronic disease medications: a cohort study. *Ann Intern Med*. 2017;166(2):81-88.
92. Peikes D, Taylor E, Dale S, et al. *Evaluation of the Comprehensive Primary Care Initiative: Second Annual Report*. Princeton, NJ: Mathematica Policy Research; 2016.
93. Smith K, Bir A, Freeman N, et al. Impact of health care delivery system innovations on total cost of care. *Health Aff (Millwood)*. 2017;36(3):509-515.
94. Sinaiko A, Landrum M, Meyers D, et al. Synthesis of research on patient-centered medical homes brings systematic differences into relief. *Health Aff (Millwood)*. 2017;36(3):500-508.
95. Kerrissey M, Clark J, Friedberg M, et al. Medical group structural integration may not ensure that care is integrated, from the patient's perspective. *Health Aff (Millwood)*. 2017;36(5):885-892.
96. Scheffler RM. *Covered California: Competition in the Health Insurance Market?* Presented at: FTC Workshop on Health Care Market Competition; February 24, 2015; Washington, DC.
97. Roberts E, Chernew M, McWilliams JM. Market share matters: evidence of insurer and provider bargaining over prices. *Health Aff (Millwood)*. 2017;36(1):141-148.
98. Roberts E, Mehrotra A, McWillliams JM. High-price and low-price physician practice do not differ significantly on care quality or efficiency. *Health Aff (Millwood)*. 2017;36(5):855-864.
99. Gaynor M, Kleiner S, Vogt W. Analysis of hospital production: an output index approach. *J Appl Econ*. 2015;30(3):398-421.
100. Schmitt M. Do hospital mergers reduce costs? *J Health Econ*. 2017;52:74-94.
101. Burns LR, Wholey DR, McCullough JS, Kralovec P, Muller R. The changing configuration of hospital systems: centralization, federalization, or fragmentation? In: Friedman L, Savage G, Goes J, eds. *Annual Review of Health Care Management: Strategy and Policy Perspectives on Reforming Hospital Systems*. Advances in Health Care Management, vol 15. Bingley, UK: Emerald Group Publishing; 2012:189-232.
102. Chandler A. *Scale and Scope: The Dynamics of Industrial Capitalism*. Boston, MA: Harvard University Press; 1990.
103. Granneman T, Brown R, Pauly M. Estimating hospital costs: a multiple-output analysis. *J Health Econ*. 1986;5(2):107-127.

104. Baker LC, Bundorf MK, Kessler D. Vertical integration: hospital ownership of physician practices is associated with higher prices and spending. *Health Aff (Millwood)*. 2014;33(5):756-763.
105. Kralewski J, Dowd B, Savage M, Tong J. Do integrated health care systems provide lower-cost, higher-quality care? *Physician Exec*. 2014;40(2):14-18.
106. Neprash H, Chernew M, Hicks A, et al. Association of financial integration between physicians and hospitals with commercial health care prices. *JAMA Intern Med*. 2015;175(12):1932-1939.
107. Song Z, Wallace J, Neprash HT, McKellar MR, Chernew ME, McWilliams J. Medicare fee cuts and cardiologist-hospital integration. *JAMA Intern Med*. 2015;175(7):1229-1231.
108. Capps C, Dranove D, Ody C. *The Effect of Hospital Acquisitions of Physician Practices on Prices and Spending*. https://www.scholars.northwestern.edu/en/publications/the-effect-of-hospital-acquisitions-of-physician-practices-on-pri. Northwestern Universiy/Institute for Policy Research working paper. Published February 2015. Accessed November 27, 2017.
109. Wagner A. *Effect of Physician-Hospital Financial Integration on Health Outcomes and Spending*. https://sites.northwestern.edu/arw764/files/2016/10/WagnerAR_JobPaper_161113-26qkl9f.pdf. Northwestern University job market paper. Published November 13, 2016. Accessed November 27, 2017.
110. Scott KW, Orav EJ, Cutler D, Jha A. Changes in hospital-physician affiliations in US hospitals and their effect on quality of care. *Ann Intern Med*. 2017;166(1):1-8.
111. Koch TG, Wendling B, Wilson N. How vertical integration affects the quantity and cost of care for Medicare beneficiaries. *J Health Econ*. 2017;52:19-32.
112. Mafi J, Wee C, Davis R, et al. Association of primary care practice location and ownership with the provision of low-value care in the United States. *JAMA Intern Med*. 2017;177(6):838-845.
113. Terrell G. *We're Just at the Starting Line: Cornerstone's Transformation in Healthcare*. Presented at: LDI/Wharton MBA Health Care Club Health Policy Seminar; February 26, 2016; Philadelphia, PA.
114. Abelson R. Cornerstone: the rise and fall of a health care experiment. *New York Times*. December 23, 2016. https://www.nytimes.com/2016/12/23/business/cornerstone-the-rise-and-fall-of-a-health-care-experiment.html. Accessed November 27, 2017.

115. Jha A. ACO winners and losers: a quick take. *An Ounce of Evidence blog*. August 30, 2016. https://blogs.sph.harvard.edu/ashish-jha/2016/08/30/aco-winners-and-losers-a-quick-take. Accessed November 27, 2017.
116. McWilliams JM. Changes in Medicare shared savings program savings from 2013 to 2014: research letter. *JAMA*. 2016;316(16):1711-1713.
117. Sullivan K. On the ethics of accountable care research. *Health Care Blog*. August 25, 2017. http://thehealthcareblog.com/blog/2017/08/25/on-the-ethics-of-accountable-care-research. Accessed September 10, 2017.
118. McConnell KJ, Renfro S, Chan B, et al. Early performance in Medicaid accountable care organizations: a comparison of Oregon and Colorado. *JAMA Intern Med*. 2017;177(4):538-545.
119. Whitman E. Lured by MACRA bonuses, more Medicare ACOs venture into risk. *Mod Healthc*. March 4, 2017.
120. American Hospital Association. *The Work Ahead: Activities and Costs to Develop an Accountable Care Organization*. Washington, DC: AHA, 2011.
121. Winblad U, Mor V, McHugh JP, Rahman M. ACO-affiliated hospitals reduced rehospitalizations from skilled nursing facilities faster than other hospitals. *Health Aff (Millwood)*. 2017;36(1):67-73.
122. McWilliams JM, Gilstrap L, Stevenson D, et al. Changes in postacute care in the Medicare shared savings program. *JAMA Intern Med*. 2017;177(4):518-526.
123. Colla C, Wennberg D, Meara E, et al. Spending differences associated with the Medicare group practice demonstration. *JAMA*. 2012;308(10):1015-1023.
124. Kautter J, Pope G, Leung M, et al. *Evaluation of the Medicare Physician Group Practice Demonstration: Final Report to CMS*. Washington, DC: CMS; September 2012.
125. Goldsmith J, Burns LR, Sen A, Goldsmith T. *Integrated Delivery Networks: In Search of Benefits and Market Effects*. Washington, DC: National Academy of Social Insurance; 2015.
126. Lewin K. *Field Theory in Social Science*. New York, NY: Harper & Row; 1951.
127. Schur CL, Sutton J. Physicians in Medicare ACOs offer mixed views of model for health care cost and quality. *Health Aff (Millwood)*. 2017;36(4):649-654.
128. Keehan S, Stone D, Poisal J, et al. National health expenditure projections, 2016–25: price increases, aging push sector to 20% of economy. *Health Aff (Millwood)*. 2017;36(3):553-563.

129. Kumar P, Sherwood A, Sutaria S. *Engaging Physicians to Transform Operational and Clinical Performance*. Chicago, IL: McKinsey & Company; 2013. http://healthcare.mckinsey.com/sites/default/files/MCK_Hosp_MDSurvey.pdf. Accessed November 27, 2017.
130. Hsu J, Vogeli C, Price M, et al. Substantial physician turnover and beneficiary "churn" in a large Medicare Pioneer ACO. *Health Aff (Millwood)*. 2017;36(4):640-648.
131. Hsu J, Price M, Spirt J, et al. Patient population loss at a large Pioneer Accountable Care Organization and implications for refining the program. *Health Aff (Millwood)*. 2016;35(3):422-430.
132. Phipps-Taylor M, Shortell SM. More than money: motivating physician behavior change in accountable care organizations. *Milbank Q*. 2016;94(4):832-861.
133. Skillman M, Cross-Barnet C, Singer R, et al. Physician engagement strategies in care coordination: findings from the Centers for Medicare and Medicaid Services Health Care Innovation Awards Program. *Health Serv Res*. 2017;52(1):291-312.
134. Basu S, Phillips R, Song Z, et al. High levels of capitation payments needed to shift primary care toward proactive team and nonvisit care. *Health Aff (Millwood)*. 2017;36(9):1599-1605.
135. Health Aff (Millwood). The landscape of physician practice. *Health Aff (Millwood)*. 2016;35(3):388-389.
136. Gunderman R. Poor care is the root of physician disengagement. *NEJM Catalyst*. January 10, 2017. https://catalyst.nejm.org/poor-care-root-physician-disengagement. Accessed November 27, 2017.
137. Schuster M, Onorato S, Meltzer D. Measuring the cost of quality measurement: a missing link in quality strategy. *JAMA*. 2017;318(13):1219-1220.
138. Bean M, Haefner M, Rappleye E, Rege A, Rosin T. We asked 13 physicians what they really think of their hospital. *Becker's Hosp Rev*. August 2, 2016. https://www.beckershospitalreview.com/hospital-physician-relationships/we-asked-13-physicians-what-they-really-think-of-their-hospital.html. November 27, 2017.
139. Rodriguez H, Henke R, Bibi S, et al. The exnovation of chronic care management processes by physician organizations. *Milbank Q*. 2016;94(3):626-653.
140. Jager A, Tutty M, Kao A. Association between physician burnout and identification with medicine as a calling. *Mayo Clin Proc*. 2016;92(3):415-422.

141. Shanafelt T, Boone S, Tan L, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Intern Med*. 2012;172(18):1377-1385.
142. Rosin T. 10 prominent health system CEOs: physician burnout is a public health crisis—here are 11 things we commit to do about it. *Becker's Hosp Rev*. March 28, 2017. https://www.beckershospitalreview.com/hospital-physician-relationships/ceos-of-mayo-cleveland-clinic-partners-and-other-health-systems-pen-call-to-action-on-physician-burnout.html. Accessed November 27, 2017.
143. Bodenheimer T, Sinsky C. From triple to quadruple aim: care of the patient requires care of the provider. *Ann Fam Med*. 2014;12(6):573-576.
144. Epstein D, ProPublica. When evidence says no, but doctors say yes. *Atlantic*. February 22, 2017. https://www.theatlantic.com/health/archive/2017/02/when-evidence-says-no-but-doctors-say-yes/517368. Accessed November 27, 2017.
145. Tatsioni A, Bonitsis N, Ioannidis J. Persistence of contradicted claims in the literature. *JAMA*. 2007;298(21):2517-2526.
146. Bye L. Datagraphic: building a culture of health: what Americans think. *Health Aff (Millwood)*. 2016;35(11):1982-1990.
147. Hibbard P. The patient activation measure and care transitions. Presented at Healthy Transitions Colorado; May 21, 2014; Denver, CO.
148. Parker J, Regan J, Petroski J. Beneficiary activation in the Medicare population. *Medicare Medicaid Res Rev*. 2014;4(4):E1-E14.
149. Volpp KG, Mohta NS. Patient engagement survey: improved engagement leads to better outcomes, but better tools are needed. *NEJM Catalyst*. May 12, 2016. https://catalyst.nejm.org/patient-engagement-report-improved-engagement-leads-better-outcomes-better-tools-needed. Accessed November 27, 2017.
150. Volpp KG, Mohta NS. Patient engagement survey: far to go to meaningful participation. *NEJM Catalyst*. September 8, 2016. https://catalyst.nejm.org/patient-engagement-initiatives-survey-meaningful-participation. November 27, 2017.
151. Peikes D, Chen A, Schore J, Brown R. Effects of care coordination on hospitalization, quality of care, and health care expenditures among Medicare beneficiaries: 15 randomized trials. *JAMA*. 2009;301(6):603-618.
152. Brown R. *Lessons for ACOs and Medical Homes on Care Coordination for High-Need Beneficiaries*. Presented at: AcademyHealth Annual Research Meeting; June2013; Baltimore, MD.

153. Reschovsky JD, Hadley J, Saiontz-Martinez CB, Boukus ER. Following the money: factors associated with the cost of treating high-cost Medicare beneficiaries. *Health Serv Res*. 2011;46(4):997-1021.
154. Schlesinger M, Grob R. Treating, fast and slow: Americans' understanding of and responses to low-value care. *Milbank Q*. 2017;95(1):70-116.
155. Thorpe K. *An Unhealthy Truth: Rising Rates of Chronic Disease and the Future of Health in America*. Washington, DC: Partnership to Fight Chronic Disease; 2007. http://www.prevent.org/data/files/initiatives/thorpeslides11-30-07.pdf. Accessed November 27, 2017.
156. Patients don't know how to best manage their cholesterol, survey finds. American Heart Association website. http://news.heart.org/patients-dont-know-how-to-best-manage-their-cholesterol-survey-finds. Published April 10, 2017. Accessed November 27, 2017.
157. Case A, Deaton A. Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century. *Proc Natl Acad Sci*. 2015;112(49):15078-15083.
158. Institute of Medicine. *US Health in International Perspective: Shorter Lives, Poorer Health*. Washington, DC: National Academies Press; 2013.
159. Sherman B, Gibson T, Lynch W, et al. Health care use and spending patterns vary by wage level in employer-sponsored plans. *Health Aff (Millwood)*. 2017;36(2):250-257.
160. McGovern L, Miller G, Hughes-Cromwick P. The relative contribution of multiple determinants to health outcomes. *Health Affairs: Health Policy Brief*. August 21, 2014. https://www.healthaffairs.org/do/10.1377/hpb20140821.404487/full. Accessed November 27, 2017.
161. Bradley E, Canavan M, Rogan E, et al. Variation in health outcomes: the role of spending on social services, public health, and health care, 2000–09. *Health Aff (Millwood)*. 2016;35(5):760-768.
162. Tanenbaum SJ. Pay for performance in Medicare: evidentiary irony and the politics of value. *J Health Polit Policy Law*. 2009;34(5):717-746.
163. McWilliams JM. MACRA: big fix or big problem? *Ann Intern Med*. 2017;167(2):122-125.
164. McWilliams JM. Cost containment and the tale of care coordination. *N Engl J Med*. 2016;375(23):2218-2220.

165. Taylor EF, Peikes D, Geonnotti K, et al. *Quality Improvements in Primary Care: External Supports for Practices*. Washington, DC: Agency for Healthcare Research and Quality; 2014.
166. D'Aunno T, Broffman L, Sparer M, Kumar S. Factors that distinguish high-performing accountable care organizations in the Medicare shared savings program. *Health Serv Res*. 2016;1-18. https://doi.org/10.1111/1475-6773.12642.
167. Burns LR, Pauly MV. Accountable care organizations may have difficulty avoiding the failures of integrated delivery networks of the 1990s. *Health Aff (Millwood)*. 2012;31(11):2407-2416.
168. Berg M, Fang Z. Most Americans have good health, little unmet need, and few health care expenses. *Health Aff (Millwood)*. 2017;36(4):742-746.
169. Jayanthi A. MD Anderson points to EPIC implementation for 77% drop in adjusted income. *Becker's Hosp CFO Rep*. August 26, 2016. https://www.beckershospitalreview.com/finance/md-anderson-points-to-epic-implementation-for-77-drop-in-adjusted-income.html. Accessed November 27, 2017.
170. Schorsch K. Hiring freeze at Advocate Health. *Crain's Chicago Bus*. April 21, 2017. http://www.chicagobusiness.com/article/20170421/NEWS03/170429971/hiring-freeze-at-advocate-health. Accessed November 27, 2017.
171. McCluskey P. Brigham and Women's offers buyouts to 1,600 workers. *Boston Globe*. April 27, 2017. https://www.bostonglobe.com/business/2017/04/27/brigham-hospital-offers-voluntary-buyouts-workers/ziDBNctyyioYrRL0GJ2t0J/story.html. Accessed November 27, 2017.
172. Ellison A. UPMC's operating income down 35% in first 9 months of fiscal year. *Becker's Hosp CFO Rep*. May 5, 2017. https://www.beckershospitalreview.com/finance/upmc-s-operating-income-down-35-in-first-9-months-of-fiscal-year.html. Accessed November 27, 2017.
173. Ellison A. Advocate Health Care to make $200M in cuts amid financial pressure. *Becker's Hosp CFO Rep*. May 5, 2017. https://www.beckershospitalreview.com/finance/advocate-health-care-to-make-200m-in-cuts-amid-financial-pressure.html. Accessed November 27, 2017.
174. Goldsmith J. Geisinger's transformation: balancing growth and risk. *Health Affairs Blog*. March 8, 2017. https://www.healthaffairs.org/do/10.1377/hblog20170308.059087/full. Accessed November 27, 2017.
175. Robinson JC. Value-based physician payment in oncology: public and private insurer initiatives. *Milbank Q*. 2017;95(1):184-203.

176. Berenson RA, Goodson J. Finding value in unexpected places—fixing the Medicare physician fee schedule. *N Engl J Med*. 2016;374:1306-1309.
177. Taleb N. *Antifragile: Things That Gain from Disorder*. New York, NY: Random House, 2012.
178. Contreary K, Rich E, Collins A, et al. *Issue Brief: Supporting Better Physician Decisions at the Point of Care; What Payers and Purchasers Can Do*. Chicago, IL: Mathematica Policy Research; February 2016.
179. Christensen C, Flier J, Vijayaraghavan V. The coming failure of accountable care. *Wall Street Journal*. February 18, 2013. https://www.wsj.com/articles/SB10001424127887324880504578296902005944398. Accessed November 27, 2017.
180. Crum A, Zuckerman B. Changing mindsets to enhance treatment effectiveness. *JAMA*. 2017;317(20):2063-2064.
181. Goldsmith J, Kaufman N, Burns LR. The tangled hospital-physician relationship. *Health Affairs Blog*. May 9, 2016. https://www.healthaffairs.org/do/10.1377/hblog20160509.054793/full. Accessed November 27, 2017.
182. Reiss-Brennan B, Brunisholz K, Dredge C, et al. Association of integrated team-based care with health care quality, utilization and cost. *JAMA*. 2016;316(8):826-834.

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