

The Limits of Accountability:
A Prospective Policy Analysis of Accountable Care Organizations

By

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Abstract

In a short period of time policymakers have propelled accountability from theory to practice in the form of the Accountable Care Organization (ACO). A mixed model of delivery and payment reform, the ACO is theorized to curb Medicare spending by incentivizing groups of physicians and other caregivers to provide coordinated and high quality care across diverse health care settings. Although ACOs are unlikely to cure all that ails America's health system, results from ACO-like experiments such as the Physician Group Practice Demonstration (PGPD) have fueled policymakers' hopes that ACOs will produce significant cost savings. Although the definitive structure of ACOs has yet to be resolved, a provisional rule recently proposed by the Centers for Medicare and Medicaid Services (CMS) offers a glimpse of their likely form. The ACO model is appealing in theory, but the current proposal for implementation suggests that ACOs may fail to yield significant cost savings to Medicare. If implemented as currently elaborated, ACOs may be limited by weak financial incentives and low participation among physicians. Of particular concern is the lack of meaningful payment reform. The current proposal suggests ACOs will do little to disrupt the prevailing incentive structure embedded in the Medicare Fee Schedule (MFS). The purpose of this paper is to explore the limitations of CMS' current proposal and how these limitations may constrain projected cost savings. This paper will also propose alternatives that may better promote the ideals of ACOs while ensuring that significant cost savings are achieved.

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Table of Contents

Abstract.....	ii
Acknowledgements.....	iii
Table of Contents.....	iv
Introduction.....	1
ACOs: A New Take on an Old Concept.....	3
Limits of Accountability.....	6
Weak Financial Incentives.....	7
Voluntary Participation.....	10
Failure to Reform the Payment System.....	12
Other Limitations.....	13
Alternative Proposals.....	14
Conclusion.....	18
References.....	21
Appendix 1: Statutory Basis for the Medicare Shared Savings Program.....	A1-1
Appendix 2: Theoretical Perspectives.....	A2-1
Appendix 3: Limited Systematic Review.....	A3-1
Appendix 4: Proposed Payment Models in ACOs.....	A4-1
Appendix 5: The Resource-Based Relative Value Scale.....	A5-1

Elliott, as always, a great presentation. Every time I hear you I'm convinced you're right and then get terribly nervous because you made it sound so doable. Here we are out in search of an accountable organization in what is basically a free range environment and you had a great ending slide, but it really wasn't the right one. It was a whole bunch of well behaved sheep eating on a prepared lawn. And really it should have been the Serengeti. It should have been one with some lions and some hyenas and elephants, and them not only eating the grass but also each other.

Dr. Robert Reischauer, economist and Medicare trustee
to Dr. Elliott Fisher, physician and public health researcher
credited with the idea of the Accountable Care Organization
Medicare Payment Advisory Commission Public Meeting
Washington, DC, Wednesday Nov 8, 2006 (p. 360)¹

INTRODUCTION

Accountability in health care is appealing in theory, but implementation may throw good money after bad. There is of course little to dislike about accountability as a model of reform in health care. That a physician be held responsible for the quality of care he or she provides appeals to our sense of justice, while rewarding a physician for providing higher quality care is congruent with market-based theories of pricing. Ensuring that all patients receive high-quality care appeals to our desire for equality.

In a short period of time, however, policymakers have propelled accountability from theory to policy in the form of the Accountable Care Organization (ACO).^{2,3} Conceived in 2006 and mandated by the Affordable Care Act (ACA) in 2010, the ACO model of care is currently taking shape.^{3,4} Months ago the Centers for Medicare and Medicaid Services (CMS) released its proposed rule provisions revealing how ACOs may be structured.⁵ Stakeholders within health care are moving quickly to understand the ACO concept and prepare for implementation.

ACOs emerge at a critical time. Health care costs in the United States continue to rise unabated, a fact that has many concerned (p. 849).⁶ In 2009 the United States spent \$2.5 trillion, or 19 percent, of its \$14.1 trillion gross domestic product (GDP) on health care.⁷ This percentage is expected to continue to rise, as it has done every year for decades.^{8,9} While policymakers and analysts have proposed myriad reasons for rising costs in health care, many believe the fragmented, fee-for-service nature of America's health care system is to blame.^{6, 10-14}

Policymakers hope that ACOs will modify this paradigm by incentivizing groups of physicians and other health care professionals to provide coordinated and high quality care that is ultimately less costly to the health care system. Cost savings are predicated on the belief that coordinating care across providers and settings and adhering to evidence-based guidelines will reduce wasteful and redundant care.^{4, 12, 15-17} Thus incentivizing groups of physicians to invest in measures and processes related to these goals are theorized to yield significant cost savings not only to Medicare, but to the entire health care system. Policymakers hope that sharing cost savings generated by these investments with providers will incentivize physicians to undertake these investments.

Much remains to be seen. While policymakers acknowledge that the ACO model is unlikely to be a panacea, even the modest benefits they envision may prove unattainable.^{18, 19} Limited evidence informs our understanding of how ACOs will contain costs and improve quality.^{20, 21} Moreover, current proposals for ACO implementation offered by CMS suffer from major limitations. Perhaps the most important of these limitations is that the ACO model fails to reform the financial incentives embedded in the current physician payment paradigm.

The purpose of this paper is to prospectively analyze the effectiveness of the ACO as a model of health care reform. Of particular interest is the extent to which the current proposal for implementing ACOs will yield meaningful payment reform. A major focus of this paper is the extent to which ACOs could create significant cost savings to the health care system. Significant limitations to the current

proposal will be reviewed. Policy alternatives to the current proposal may offer a better means to influence physician behavior and enhance system-wide cost savings.

ACOs: A NEW TAKE ON AN OLD CONCEPT

The term “Accountable Care Organization” is only five years old, but the concept of accountability in health care is not new.^{15, 18, 19} Holding providers accountable for outcomes and costs is a longstanding principle of managed care. Health Maintenance Organizations (HMOs) of the 1980’s and 1990’s, often termed “accountable health plans,” were held accountable for both insurance risk and the quality of care they provided (p. 1).¹⁹ Provider Sponsored Organizations (PSOs) of the 1990’s assumed accountability for both insurance risk and quality of care but on a smaller scale than HMOs.²²

The focus of accountability for Medicare costs today is arguably the Sustainable Growth Rate (SGR). Adopted in 1997, the SGR is an attempt by policymakers to hold all Medicare providers nationwide accountable for rising health expenditures. The SGR has been largely unsuccessful. Political reluctance to enforce the SGR as well as the diffuse, national-level nature of the incentive has done little to shape individual physician behavior. Cost containment has not been achieved as evidenced by the ballooning national health expenditure (NHE).^{7-9, 23, 24}

In many ways the ACO resembles both the SGR and the managed care experiments of the past. The ACO concept applies the principles of cost containment to smaller foci of accountability than the SGR, namely groups of physicians and other caregivers. Like HMOs and PSOs, ACOs will provide comprehensive care for a specific population of enrollees. This comprehensive care will evolve from increased communication between providers and across settings. ACOs will be held accountable for meeting quality and cost benchmarks for its patient population. Performance measures and cost targets will be evaluated and form the basis of payments or penalties.^{4, 12, 15-17, 25, 26}

Despite these similarities, the ACO is distinct from previous models of managed care in several ways. Whereas HMOs and PSOs relied heavily on forms of capitation, the recent proposal from CMS suggests that capitation is unlikely to be employed in ACOs, at least not initially. Although the precise payment model for ACOs is still in question, the proposal rules suggest that providers will initially be given the option of a one-sided or two-sided shared savings model. In this model, Medicare will return to the ACO a percentage of any cost savings generated by the ACO as long as quality benchmarks are met.²⁵ For more information on one-sided, two-sided, and capitated forms of payment, please see Appendix 4: Proposed Payment Models in ACOs.

The ACO model is also less rigid in structure than managed care models of the past. Both the ACA and the CMS' recent proposal stipulate that ACOs may take one of the following five forms: professionals in a group practice, networks of individual practices, partnerships between hospitals and individual professionals, hospitals employing professionals, or other groups of providers as determined by the Secretary [of HHS] (§3022 subsection (b)(1), p. 16).^{3, 25} While ACOs may assume the size and scope of a traditional HMO, a perceived advantage of the ACO is that it allows smaller groups of providers to participate. Regardless of size, an ACO must care for a minimum of 5,000 enrollees (§3022 subsection (b)(2), p. 17).^{3, 25} Thus in many ways the ACO concept is founded in both the SGR and the managed care models of the past, but adds a degree of flexibility and does not saddle physicians with the financial risks posed by capitated payments.

Like previous managed care models, ACOs developed from the notion that rising health expenditures in the United States are largely the result of a defective payment system paired to an inefficient delivery system. The ACO attempts to improve both. Specifically, policymakers hope ACOs will respond to the lure of earning performance-based bonuses in the form of shared savings by investing in new processes and technologies that lead to better care coordination and therefore reduce redundancy. Medicare will utilize measures of clinical performance and cost to evaluate ACO performance retrospectively. If Medicare judges that quality benchmarks have been met and the appropriate level of

cost savings have been achieved above threshold, Medicare will then share a percentage of the savings with the ACO.^{4, 12, 15-17, 25, 26}

Although there is limited evidence to support the contention that ACOs will result in substantial savings to the health system, cost savings are nevertheless anticipated.^{20, 21, 27} The best evidence available results from the CMS-sponsored Physician Group Practice Demonstration (PGPD). Begun in 2005, the PGPD closely resembles the one-sided shared savings program outlined in the current CMS proposal. Ten participating physician groups were paid under the regular Medicare Fee Schedule (MFS) but also earned up to 80 percent of the cost savings they generated in the form of bonuses. Starting in year two of the demonstration, quality of care measures were incorporated such that, by year three, 50 percent of every performance payment was for cost efficiency and 50 percent was for achieving quality benchmarks (pp. 1-2).²¹

The results are modestly positive. In year one, all ten of the physician groups improved the clinical management of diabetes patients. Two of the ten groups earned \$7.3 million in performance payments as their share (77 percent) of a total of \$9.5 million in cost savings. In year 2, all ten of the groups achieved at least 25 of 27 benchmarks for quality of care for diabetes, coronary artery disease, and congestive heart failure. Four groups earned \$13.8 million as their share (79 percent) of \$17.4 million in overall savings to Medicare. In year three, the last year for which performance data is available, all groups achieved 28 of 32 quality benchmarks in all of the above diseases plus hypertension and cancer screening. Five of the ten groups earned \$23.5 million in payments as their share (73 percent) of \$32.3 million in cost savings (pp. 4-5).²¹ Newly released data show these same five groups were the only groups to earn bonuses in year four (p. 199).²⁰

Beyond the results of the PGPD, there is scant evidence. Recent experiments with alternative models of reform such as the Prometheus Payment Model provide some insight, but these models are based on a distinctly different concept of delivery and payment reform. The only other evidence about ACO performance in particular is the evidence from a series of simulations performed in 2009 by Dr.

Elliott Fisher, a physician who is widely regarded as the father of the ACO concept. Fisher *et al.* suggest through their simulations that if all ACO's with more than 5,000 beneficiaries participate, meet all quality standards, and achieve an average of 1 percent savings each year, by year three the total amount of fee-for-service payments in Medicare would decline by \$2 billion (p. w226).¹⁵

Dr. Fisher argues that while these cost savings are small, these simulations assume only very modest cost savings. Presumably with time the efficiencies of the system would lead to even greater cost savings. Moreover, even modest decreases in total payments would have a significant positive effect. As part of their simulations, Fisher, Bynum, and Skinner estimated in 2009 that Medicare will be \$660 billion in debt by 2023 at current payment rates. They calculated that a reduction in per capita spending by only 1.1 percent results would instead leave Medicare with an estimated \$758 billion instead, a total savings of \$1.42 trillion (852).²⁷

Of course, these simulations are predicated on the assumption that ACOs will work as intended. This is a loaded assumption, for the task that lies before the ACO, namely reform of the delivery and payment systems, is a substantial one. Juggling both types of reform have complicated efforts in the past. Policymakers have argued that payment reform is impossible without reform of the delivery systems in place to accept payment reform. Others have argued the inverse. While the ACO attempts to solve the “chicken and egg problem,” it may be trying to do too much at once and none of it well (p. 1, p. w232).¹⁹

28

LIMITS OF ACCOUNTABILITY

In order for ACOs to foster substantive change in the health care delivery system, several things must happen. First, groups of physicians must participate. If few groups of physicians are willing to form ACOs, ACOs are unlikely to garner further support from policymakers and will fail to produce the cost-

savings theorized by proponents. Second, the incentives presented to physicians within ACOs must be attractive relative to the incentives of the prevailing system. Even if groups of physicians are willing to form ACOs, their behavior is unlikely to change in the ways intended by policymakers unless the incentives are relatively more attractive than the status quo. Finally, provider behavior must change in ways that lead to the desired outcome. In the case of ACOs, policy must predictably shape physician behavior in ways that lead to high quality and cost effective care.

CMS's current proposal for implementing ACOs falls short of these ideals. Not only does CMS's proposal offer incentives that will likely be unattractive to physicians contemplating participation, but the proposal fails to enforce participation in ACOs. Perhaps most significantly, the current proposal does little to meaningfully reform the current payment system.

WEAK FINANCIAL INCENTIVES

Groups of physicians must formally apply for ACO status. Those that are granted ACO status are required to participate for a minimum of three years. Initially, ACOs are expected to make investments in infrastructure, processes, and technology in order to collect, report, and analyze cost and quality data as well as coordinate care across settings with other providers and institutions (p. 23).⁵ These initial investments are theorized to enable ACOs to provide high quality and low cost care not only for ACO patients, but for all patients since these investments would be applied uniformly across multiple patient populations within an ACO, regardless of whether the patient had opted out of participating.

CMS offers no financial help for nascent ACOs to offset the costs associated with these initial investments. The costs associated with these initial investments would presumably be borne entirely by ACOs. For individual physicians and small group practices, these costs would likely present a significant barrier to entry. For larger multispecialty group practices, hospitals, and health systems, these investments

would likely pose less of a hurdle. Regardless, evidence from the PGPD suggests that even institutions with the most favorable infrastructure already in place would be unlikely to recoup their investment costs over the three-year period mandated by CMS.²⁹

CMS intends to measure quality, at least initially, using 65 benchmarks across five categories that range from patient-reported measures to variables related to safety and prevention (p. 4).³⁰ In theory these benchmarks would be prospectively designated and retrospectively evaluated but, although CMS has provided physicians with a generalized list of these benchmarks, it has not yet provided specific measures for each benchmark. CMS proposes to supply nascent ACOs with specifics only after an initial, mandatory one-year period of data reporting.

Meeting these quality benchmarks will be essential to an ACO's ability to earn a bonus payment because, under current provisions, an ACO will not earn a bonus payment if quality benchmarks are not met regardless of whether or not cost savings have been achieved. Thus for nascent ACOs to not fully understand the measures that are being applied before participating may be a deterrent to participation because it decreases their likelihood of earning a bonus. That CMS intends to implement the ACO concept without having defined how their benchmarks will be measured is unsettling. Measuring clinical performance has been a major challenge in previous attempts at health care reform, and remains so today.³¹

CMS proposes to award bonuses to ACOs for successfully meeting both quality and cost benchmarks. These bonuses would constitute a percentage of the shared savings that an ACO generates above a threshold. This threshold, the "minimum savings rate," (MSR) would be prospectively defined and would depend on ACO size (p. 234).⁵ The MSR is intended to account for normal year-to-year variation in cost of care and assumes that smaller ACOs will experience higher variability in costs than larger ACOs. Current proposals set the MSR as 3.9% for smaller ACOs and 2% for larger ACOs (pp. 4-5, p. 4).^{32,33} While CMS believes smaller ACOs will exhibit higher volatility year to year than larger ACOs,

setting the threshold higher for smaller ACOs essentially diminishes the size of bonus payments for smaller ACOs, which are already less likely to participate due to the initial investments required.

Once the MSR is reached, CMS proposes paying ACOs a percentage of the savings they generate. Aggregate savings generated by the ACO will be calculated on an individual patient basis and will constitute the difference between the actual and expected costs. The expected cost will be prospectively calculated by Medicare and will be based on a national average cost for a similar patient. The bonus itself will be a percentage of this difference. CMS currently proposes these percentages to be either 50 percent for ACOs adopting the one-sided model or 60 percent for ACOs that adopt a two-sided model (p. 4).³³

Interestingly, the percentage of savings that CMS is willing to share is significantly lower in the current proposal than in the PGPD, in which Medicare shared approximately 80 percent of savings.²¹ While this lower rate of sharing means that Medicare will enjoy more of the savings, this sharing rate may be too low to spur uptake among providers. Furthermore, the 10 percent spread between the one-sided and two-sided model will likely steer newly forming ACOs towards the one-sided model initially. It is difficult to imagine a nascent ACO being willing to expose itself to the prospect of financial penalties in exchange for 10 percent more shared savings.

Notably, ACOs that adopt the one-sided model initially will have to revert to a two-sided model in year three. By year three, all ACOs will have a two-sided payment structure. This two-sided payment structure will allow CMS to levy penalties on ACOs that fail to meet quality benchmarks and generate cost savings. CMS' current proposal suggests that these penalties will constitute percentages of the costs above the national mean, and will amount to 2.5, 5, and 10 percent in years 1, 2 and 3, respectively. These penalties are substantial, especially when considering that hospital margins average only 3 to 7 percent (p. w1017).³⁴

Finally, Medicare intends to withhold 25 percent of all bonus payments to ensure that ACOs that are levied penalties are able to pay (p. 7).³² The withheld amount will be returned at the end of the three-

year participation period minus any penalties owed. In the event that an ACO terminates its agreement with CMS prior to the end of the three-year period, the amount withheld will not be returned (p. 278).⁵ CMS believes this stipulation is necessary to encourage ACOs to participate for the full three-year period and to help offset the risk of potential penalties. However, withholding lowers the total amount of bonus payments that ACOs can expect to receive in the near term. This effectively diminishes the return on an ACO's initial investments. Thus while ensuring that ACOs are held accountable and participate for the full three-year term, the withholding stipulation further erodes the financial incentives that are believed to draw providers into forming ACOs. Arguably, it also sends the message to providers considering participation that Medicare believes ACOs may be unsuccessful at generating cost savings.

VOLUNTARY PARTICIPATION

Further exacerbating the weak financial incentives of the CMS' proposal is the fact that participation in ACOs is voluntary for both physicians and patients. Voluntary participation leads to selective application of the ACO incentives on the nation's health care providers. As such, it is likely to only shape the behavior of a subset of providers, and likely only those providers who already behave in ways that the incentives seek to encourage because these individuals have the most to gain from participating.

It is likely that participation in ACOs as they are presently apparently constructed will appeal to only select groups of physicians. These groups likely include physicians in settings that are already providing high quality care. These groups may regard ACO participation as an opportunity to be compensated for services they already offer and for which they have been traditionally undercompensated. These groups also include hospitals that already have the infrastructure in place to

meet the administrative burdens of data collection and reporting, that benefit from larger financial balance sheets and are undaunted by the potential of financial penalties, and that already have diverse provider staffs across multiple specialties and settings.

Conversely, certain types of physicians will be less likely to voluntarily form ACOs. Physicians who are relatively comfortable with the level of financial compensation they receive in the current payment paradigm will be less likely to participate. Relative to the status quo, these providers are more likely to perceive ACOs as offering limited financial upside. This upside will be further limited by the prospect of financial penalties, increased administrative and technology costs, and the interpersonal complications that will inevitably arise between physicians as a result of changing the way in which they are remunerated relative to one another.

A further complication is that patients also choose whether to participate in ACOs. CMS is currently proposing that ACO providers inform their patients that they are receiving care in an ACO. Patients may decline participation in several ways. They may opt out of having their personal health data collected and analyzed. Patients are also free to change providers entirely. More importantly, perhaps, patients who do agree to receive their care in an ACO setting and agree to have their health data analyzed are still free to seek care at any time from other physicians or health organizations (p. 2),³⁵ potentially substantially interfering with the coordinated, “medical home” approach to care that ACOs are meant to support. Also, since patients will be assigned retrospectively to ACOs, ACO providers will not be aware they are accountable for a patient until after care has been provided.

Thus the ACO imposes no restrictions on patient demand for care, yet makes providers accountable for the spending habits of their patients. It is difficult to conceive how physicians could be responsible for controlling the costs and quality of care that their patients receive if the physician has little control over where and how many services their patients receive.

FAILURE TO REFORM THE PAYMENT SYSTEM

Perhaps the most significant limitation of the CMS' current proposal is that ACOs fail to offer meaningful payment reform. Even if groups of providers found the incentives of ACOs financially attractive or were obligated by Medicare to participate, it is unlikely that the proposed incentives would disrupt the influence of the prevailing payment system on provider behavior.

At the heart of this limitation is that CMS proposes to continue paying providers in accordance with the traditional Medicare Fee Schedule (MFS). The MFS has been the prevailing payment system for providers in America for approximately 20 years. The MFS is based on the Resource-Based Relative Value Scale (RBRVS), a methodology that accounts for the resources used to provide a particular health service and the value of a health service relative to other services.

When the RBRVS was implemented in 1992, it represented a significant improvement from the prior "usual, customary, and reasonable" (UCR) payment methodology. Over the past twenty years, however, the RBRVS has become the focus of heated political debate among physicians and policymakers. Traditionally viewed as favoring specialists and proceduralists because it over-weights procedures, the RBRVS is frequently charged with contributing to rising health costs in America. For more information on the RBRVS, please see Appendix 5: The Resource-Based Relative Value Scale.

The ACO essentially layers a group-level, "output driven" incentive structure on the prevailing individual-level, "input driven" incentives of the MFS. ACOs will be severely limited by these conflicting incentives. The longstanding financial incentives of the MFS will likely predominate, and providers will continue to practice in response to them. In part this is because the incentives of the MFS are dependable. In contrast, the bonus payments that CMS is offering are both unpredictable and further eroded by the withholding rule and MSR.

There is little evidence to suggest that ACOs will pursue a policy of distributive justice. ACOs will be subject to the same market constraints that all health care organizations in America experience.

Like other health organizations, ACOs will have to pay market prices for physicians, and these prices are currently determined in large part by measures of productivity, which are in turn related to the MFS and RBRVS. Providers who earn relatively more in the current system may continue to do so in the ACO and may have little incentive to change their practice patterns. Bonus payments to ACOs for meeting cost and quality benchmarks will likely be distributed along lines of performance similar to those currently used. That is to say, there is little evidence to suggest that ACOs will distribute bonuses in favor of individual physicians who contribute most to achieving the bonus itself.

OTHER LIMITATIONS

Nothing in the current proposal suggests that services traditionally not reimbursed by Medicare will be reimbursed in the ACO setting. Time-intensive and non-reimbursed services like patient counseling may prove essential to achieving cost savings, but will continue to be uncompensated. Of course, ACOs could fund these services with the bonus payments they earn, but this would be a risky proposition. Bonus payments will be both unpredictable and variable while the cost of providing these services fixed and recurring. Moreover, using a bonus payment to pay for services that should in theory be reimbursed anyway would likely prove unpalatable for providers.

Another limitation of ACOs is that they do little to reshape the physician workforce in ways that support their existence or the services they intend to provide, namely preventive services and care coordination. These services are cornerstones of the ACO model but rely heavily on a base of primary care, at a time when fewer and fewer physicians are choosing primary care. This trend has been attributed to numerous factors, but many of them relate to the current payment paradigm.^{36, 37} The MFS reimburses primary care services poorly relative to more resource-intensive, procedure-oriented services. Medical

graduates and practicing physicians alike thus eschew primary care in favor of specialty practices that offer the lure of higher reimbursements.

Although extremely important, the financial incentives of ACOs will not be the only factor determining provider participation. Physicians will be sensitive to their own perceptions of how much additional administrative burden ACOs place upon them. A subset of physicians likely believes that high administrative costs contribute significantly to the high cost of health care, and will perceive the increased administrative demands of ACOs as a problem and not a solution. Other physicians will likely resist the idea that they now are required by Medicare to meet additional demands in order to be paid for services that they have been providing for years for little or no reimbursement.³⁷

The success of ACOs will also be limited by how ACOs are perceived by the American public. Despite the theoretical benefits of managed care, history has shown that managed care is unpopular with the public.^{38, 39} In the past the public has equated managed care with stingy providers who favor cost cutting over their personal health. If uptake by providers is essential to ACO success, acceptance by ACO patients is even more so. If significant percentages of patients within practices that form ACOs opt out of participating, then ACOs would be unable to generate any reasonable cost savings. Selling ACOs to the public will be a complicated task and will have to occur at many levels. Education will have to be provided. Providers will have to emphasize to individual patients how ACOs will benefit them, not just the health care system.

ALTERNATIVE PROPOSALS

As we have established, CMS' current proposal for ACOs suffers from significant limitations. Of particular concern are the weak financial incentives for providers, the voluntary nature of the program, and the failure to reform the prevailing payment paradigm. These limitations may lead to low provider

participation and an inability of ACOs to generate meaningful change in provider behavior. Addressing these limitations should be an essential consideration of policymakers at this early stage of ACO implementation.

In drafting the current proposal, policymakers were likely constrained by both pragmatic and political concerns. Any new government health program inevitably requires administration and this administration comes at a cost. Thus the size and scope of implementation likely was a major consideration. Moreover, health care is a diverse landscape and stakeholders with a wide range of interests likely lobbied for what they perceived to be the in their best interests. The current proposal was likely the result of numerous compromises between these stakeholders.

In drafting alternative proposals, accommodating these practical and political concerns will be essential if ACOs are to survive in the long run. Alternative proposals will have to be attractive to diverse groups of stakeholders and offer realistic opportunities for providers to share in savings. They will have to reward long term efficiencies as opposed to short term solutions. Alternative proposals will also have to be fair to providers by holding them accountable for only those variables over which they have control.

How can the current policy proposal be modified to make the ACO concept more successful? An obvious first step would be to make participation obligatory, either for a subset of providers like primary care physicians or for all providers. Making participation obligatory for only a subset of providers is unlikely to be politically feasible. Discriminating against a subset of physicians by mandating their participation would likely invoke a strong backlash.

Requiring all providers to participate, however, would not be outside the scope of political feasibility. When Medicare implemented the MFS in 1992, it imposed sweeping payment reform on all health care providers. Although it was initially met with much skepticism, providers came to accept it. Thus major payment reform of the health system has happened in recent history, and could happen again.

However, mandating universal participation in ACOs would be fiscally risky for Medicare. As we have established, CMS moved quickly to implement ACOs. The mandate for ACOs, the ACA, was

signed into law in March 2010 and only a year later the current proposal emerged. Estimates of cost savings are based on one experiment, the PGPD, and by year three of that demonstration only five of the ten participating organizations generated cost savings and earned bonuses. In contrast, the MFS and RBRVS were the product of seven years of survey-based research. Before the MFS was implemented, researchers were able to offer an exact analysis of how implementation would affect Medicare's balance sheet.⁴⁰ Relative to the MFS, then, ACOs present a substantial fiscal risk. Uniform implementation of the ACO concept would require substantial levels of initial investment by both Medicare and providers in return for an uncertain outcome. While uniform implementation of ACOs is not outside the scope of Medicare, it would be a fiscally risky decision.

An alternative to making participation mandatory is to levy a fine on providers who do not participate. While providers would likely be extremely resistant to the idea of being fined for non-participation, this is also not outside the scope of Medicare. The benefit of levying fines is that it would provide Medicare with revenue to offset the administrative costs of managing the ACO program while strengthening the financial incentive for providers to participate. However, in the face of fines many providers would likely cease caring for Medicare beneficiaries which would create problems of access.

Instead of mandating that providers participate or fining providers for failure to participate, Medicare would be better served to strengthen the financial incentives within the ACO model to ensure adequate voluntary participation among providers. One way to increase the attractiveness of the incentives is to increase the percentage of savings that CMS will share with ACOs. In the PGPD, Medicare shared approximately 80 percent of savings with participating practices. This is substantially higher than the 50 and 60 percent that CMS is currently proposing for the one-sided and two-sided model, respectively. Moreover, in the PGPD there was no withholding of 25 percent of bonus payments. Corrected for withholding, ACOs in the current proposal only stand to earn 37.5 and 45 percent of their savings beyond the MSR in the one-sided and two-sided model, respectively.

It is unclear why Medicare suggested a lower shared savings rate in the current proposal. A likely explanation is that Medicare envisioned an increased administrative burden and the associated costs from more widespread implementation of the ACO concept. Another explanation would be that Medicare thought it could get away with it. That is, Medicare thought providers would still participate. And they still may. It is worth considering, however, that at year three all ACOs will be further subject to the threat of financial penalties, which further erodes the attractiveness of any bonus payment.

With regard to penalties, CMS could strengthen the financial incentives for participation by lowering the level of penalties it proposes to levy for failure to perform. CMS felt strongly that levying penalties would be essential to ensuring that providers responded to the tenets of the ACO. Yet CMS must walk a fine line between penalties high enough to produce meaningful change in provider behavior and penalties perceived to be so high that providers are unwilling to participate.

The prospect of financial penalty is likely palpable for providers deciding whether to participate. Considering the evidence from the PGPD, the chance that ACOs will be levied penalties may be high. In year one of the demonstration only two practices earned a bonus, and by year three only half of participants had earned bonuses. Newly released data show that in year four only the same five practices that earned bonuses in year three had continued to earn bonuses (p. 199).²⁰ It is unknown whether the groups who continually fail to earn bonuses do so because they did not meet quality benchmarks or because they failed to generate savings. Regardless, it can be assumed that even after four years of participation half of firms who try the ACO concept may be at risk of being penalized.

Another way to improve the attractiveness of the ACO model is to greatly diminish, or eliminate altogether, the withholding of 25 percent of bonus payments that is currently proposed. Withholding a quarter of all bonus payments to ensure that ACOs can pay potential penalties significantly erodes the attractiveness of any bonus payment. Furthermore, that Medicare wants to withhold savings to ensure that future penalties are paid sends the message to providers not only that they expect groups to fail, but that they expect groups to have difficulty paying the fines. In fact, if potential cost savings are anticipated by

CMS to be small enough that 25 percent of the average bonus payment will be required to cover 10 percent of any loss, CMS appears to anticipate that ACOs will generate larger losses than savings.

Finally, how can we modify the current proposal for ACO implementation to encourage a degree of meaningful payment reform? One possibility is that Medicare could pursue a policy of distributive justice by stipulating how ACOs pay individual providers within ACOs. Medicare could also require ACOs to provide an accounting of individual providers' performance and the proportion of the ACO's bonus payment that each individual provider received. While this would in theory violate one of the theoretical strengths of the ACO – a focus on groups of providers rather than singling out physicians – it would represent a more concerted effort at ensuring the appropriate individuals were rewarded for the right behavior. A potential downside is that individual-level performance measurement would likely require more administrative investment and would likely be more expensive.

Since a major concern is that ACOs do little to reimburse physicians for the kinds of preventive and care coordination services that ACOs will likely provide, Medicare could also amend the current fee schedule by adding new relative value units (RVUs) for these services. This would likely require new legislation since RVUs are updated only every five years and an update cycle is currently concluding. By providing new codes for previously unreimbursable services, however, providers would be incentivized to provide those services.

CONCLUSION

Health care in United States has long been the domain on the small businessman. That historically autonomous physicians will work together and be held collectively accountable for their patients seems far fetched. Yet there is reason to hope that ACOs may succeed. With some changes to the current

proposal, careful administrative management, and gradual implementation, ACOs may yield some improvements in quality and generate savings in the process.

Much of the ACO model's fate will depend on how carefully Medicare manages its investment. Despite the rapid pace with which CMS moved to implement accountable care, the limited and tiered structure of the incentives suggest that Medicare intended a more gradual implementation. Ultimately, Medicare will have to modulate how much political and financial capital it is willing to invest in the ACO concept. Too little investment and the ACO will likely fail. Too much investment and Medicare will find itself fiscally compromised in a time of universal budgetary shortfalls.

The American public itself also remains a significant hurdle. Inconsistent and paradoxical views of health care abound. While consistently supporting the idea that America needs to spend more on its health care, the American public consistently fails to support specific proposals for spending on public health.⁴¹ Moreover, despite consistently expressing dissatisfaction with the current health care system, most Americans are satisfied with the care they receive from their doctor (p. 41).⁴² Despite the mounting palpable negative externalities of rising costs within the health care system, the popular will is likely to resist change. Convincing the public that ACOs are different from the similar sounding HMOs and PSO's of the past will be challenging.

Current trends in the health care marketplace may actually aid efforts at implementing ACOs. While still the domain of the small businessman, rapid consolidation within the health care marketplace is reshaping both the structure and politics of the physician workforce. Aging physicians are nearing retirement and selling their practices to larger hospital systems that in turn need greater market share in the face of declining reimbursements. Younger physicians are less interested in the business aspects of health care and are more willing to trade the prospect of increased financial gain for dependable hours and a salary. As physicians have transitioned from small business owners to employees, their politics have changed.⁴³

Perhaps the most reasonable way for Medicare to roll out payment reform is to proceed as planned with implementing ACOs, acknowledging that initially uptake will be low. After several years, if ACOs fail to generate the anticipated cost savings, then Medicare could abandon the model altogether without significant loss. If ACOs are successful, then Medicare could coax physicians into ACOs using the SGR. By lowering payments across the board in the traditional Medicare Fee Schedule, providers would turn to ACOs as an opportunity to make up the difference. Eventually, accountability in health care would be the norm, not the exception.

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Appendix 1: Statutory Basis for the Medicare Shared Savings Program

§3022 of the Patient Protection and Affordable Care Act is entitled “Medicare Shared Savings Program” and amends Title XVIII of the Social Security Act by adding provisions that give the Secretary of the Department of Health and Human Services the mandate to establish ACOs. Subsection (a)(1) of §3022 generally authorizes the Secretary to establish by January 1, 2012 a “shared savings program” that “promotes accountability for a patient population” and “coordinates items and services under [Medicare] parts A and B” and “encourages investment in infrastructure and redesigned care processes.”

Subsection (d)(1) stipulates that Medicare providers will continue to be reimbursed under a fee-for-service arrangement but that providers in ACOs will “be eligible to receive payment for shared savings” if an ACO meets “quality performance standards established by the Secretary [of the DHHS].” Subparagraph (B)(i) stipulates that savings will be determined by comparing an estimated per capita expenditure within an ACO adjusted for beneficiary characteristics to a benchmark determined by the Secretary using the most recent three years of beneficiary expenditure data. If an ACO’s per capita rate is lower than the benchmark by at a minimum percentage, then the ACO will be given a percentage of the shared savings. Subsection (d)(3) allows the Secretary to sanction an ACO for avoiding “at risk” patients in an attempt to lower costs.

Subsection (i) allows the Secretary to use alternative payment models in place of the model described in subsection (d)(1). One such model, described in subparagraph (2), is the partial capitation model. In this model, the ACO is “at financial risk for some, but not all, of the items and services covered under [Medicare] parts A and B.” The amendment does note that the Secretary can limit application of this model to “highly integrated systems of care” and to “ACOs capable of bearing risk.” Subparagraph (3) provides for “other payment models” and essentially allows the Secretary to develop “any payment model that the Secretary determines will improve the quality and efficiency of items and services furnished.

Appendix 2: Theoretical Perspectives

THE MARKET FOR HEALTH CARE IN THE UNITED STATES

Four principal actors operate within the health services marketplace: purchasers, providers, insurers, and suppliers. Purchasers buy health services and include individuals, employers, and the government. Providers furnish health services and include physicians, other health professionals, hospitals, and diverse health care facilities like nursing homes and rehabilitation centers. Insurers receive money from purchasers and pay providers for health services. Suppliers develop and produce goods used by providers and include pharmaceutical companies and device manufactures. The government acts as either an insurer or purchaser in its capacity as the administrator of Medicare and Medicaid.⁶

These four actors interact with each other in ways that are both synergistic and antagonistic. Generally purchasers of health services resist increases in prices, while providers and suppliers support increases in prices. Insurers play a dual role. In their capacity as purchasers of health services, insurers resist increases in the prices of health services. Yet in their capacity as suppliers of health insurance, insurers support price increases.

Thus the market for health services is one characterized by multiple actors with competing interests. In this way it is not dissimilar from markets for other goods. However, the market for health care is unique in several ways. First, the market for health services is characterized by a marked asymmetry of knowledge between providers and purchasers. Patients and other purchasers of health services rely heavily on providers in deciding how to spend purchasers' money. This reliance is particularly acute in cases where individual purchasers are very ill or otherwise unable to make decision on their own. In these cases decisions are made almost exclusively by physicians on behalf of their patients.

Second, many purchasers within the market for health services are not directly involved in decisions that lead to expenditures. In this so-called “third party payer” system, insured individuals make health decisions with their physicians but the cost is ultimately born by a third party purchaser. This third party purchaser may be an insurance company or the government. This creates a situation of “moral hazard” in which behavior of patients differs from how their behavior would be otherwise if they personally had to pay for their own care. That is to say, patients and providers both find it easier to spend money that doesn’t belong to them.

Third, the good being bought and sold within the market for health services – health, or health care – is a good for which society has both complex and incongruous feelings.⁴⁴⁻⁴⁶ While health services are bought and sold competitively in the market-based American tradition, a significant segment of the American public believes health care and access to health services is a right and, as such, a public rather than private good.⁴⁷ This creates a system where everyone has some degree of entitlement to care but doesn’t necessarily have to pay for it. The uninsured individual being guaranteed basic care in an emergency department is an example.

Finally, health is a good that traditionally exhibits a relatively inelastic demand curve. That is to say, as the price of health care increases, demand does not necessarily decrease. Generally, individuals never want less health; rather, they’d like as much health as money can buy. This is especially true for acutely ill patients who, without appropriate and timely care, would die. This is less true for services that are elective in nature. There is recent anecdotal evidence that suggests that demand for some health services may be less inelastic than previously thought, at least in the current economic environment.⁴⁸

WAYS TO PAY PHYSICIANS

Insofar as financial incentives influence physician behavior, and physician behavior influences the supply, distribution, cost, and quality of health services, policymakers can utilize physician payment to shape how health care is distributed. Policymakers have myriad choices in how to incentivize the behavior they desire.

In one sense, policymakers can regulate payment at different levels within the system. First, incentives can be applied at the level of the health system. An example of this would be the Sustainable Growth Rate (SGR), which is a health-system level incentive designed to make all providers in the United States accountable for growing costs in Medicare. Second, incentives can be applied at the organization or group level. An example of such an incentive would be the Accountable Care Organizations that are the focus of this paper. Finally, incentives can be applied at the level of the provider. The most visible of provider-level incentives is the Medicare Fee Schedule, the methodology by which Medicare reimburses individual providers for their services.

In another sense, policymakers can regulate the way they pay physicians. There are many different ways to pay physicians, and each comes with advantages and disadvantages.⁴⁹ There are three in particular that have been used most often. First, fee for service is the predominant system in the United States today. In fee for service, a physician is paid piecemeal for each service he provides. On the one hand, fee-for-service encourages providers to perform services because they are paid relatively more for providing more services. On the other hand, fee-for-service also rewards providers when they provide unnecessary services. In the context of provider billing, fee-for-service also encourages the itemization of services. Since physicians earn more with each successive service, providers have an incentive to split services into multiple visits.

At the opposite end of the payment spectrum from fee-for-service is capitation. In a capitated payment system, providers prospectively receive a set amount of payment to manage the health of a patient. If a provider manages to spend less caring for that patient than the fee he is provided, the provider earns the difference as profit. If the provider spends more than what he is given, he must make up the difference from his own pocket. Thus capitation encourages providers to make wise choices in how they allocate their fixed income in caring for patients. At the same time, capitation also encourages providers to provide as little care as needed and to systematically avoid the sickest of patients, who are the most costly. Capitation also encourages physicians to refer patients as much as possible so as to not bear the expense of caring for all of a patient's problems.

The third major payment mechanism, salary, provides a physician with a steady amount of pay that is disconnected with the number of patients he cares for. In some ways, salary corrects the ills of the fee-for-service methodology in that providers are not incentivized to provide excessive or unnecessary services. Supplying relatively more services in a salary paradigm does not earn the physician relatively more income. On the other hand, salary discourages productivity and, absent other mechanisms to monitor performance, leads to lack of accountability on the part of providers.

Related to the methodology with which physicians are paid is the time frame in which they are paid. Physicians can be paid either prospectively or retrospectively. Prospective payment is most often associated with capitation, as providers are paid in advance for the services they provide. Since providers cannot know in advance all of the services that they will need to provide, prospective payment puts physicians at financial risk. Retrospective payment, on the other hand, pays physicians after services are rendered. Although this does not necessitate that a physician be paid for all of the services they render, retrospective payment is most often associated with a fee-for-service methodology.

Although much of the current policy debate over physician reimbursement focuses on the relative merits of one payment methodology versus another, in reality many physicians in America are paid via so-called "blended systems." These blended systems seek to harness the positive aspects of the various

methodologies while minimizing the negative aspects. One such example is a physician who receives a base pay in the form of salary that is known prospectively, but who also receives a retrospectively calculated bonus that is based on his productivity.

CONSIDERATIONS IN DETERMINING PHYSICIAN PAY

Finally, like other wage earners, physicians “must eat to live.”⁵⁰ Yet physicians differ from other wage earners in ways that bear significantly on discussions of how they should be paid for their services. One, there are relatively few physicians in society. Access into the medical profession is restricted, which means a limited number of individuals are able to become physicians. From the perspective of classical economics, restricted access into the profession may limit competition in the supply of health services, increase the monopoly power of physicians, and generally lead to higher prices.⁵¹

Second, physicians must endure years of education and training at substantial personal expense and opportunity cost in order to practice. The average cost of a medical education in the United States today is approximately \$50,000 per year and the average medical student begins his residency with significant debt.⁵² Each passing year of training carries with it the opportunity cost of doing something else. For example, in the seven years that it takes to complete medical school and complete the minimum residency of three years, a physician could have been working, earning an income, and earning equity in a house.

Third, physicians offer services that are not only highly valued by society, but are perhaps essential to the functioning of society as we know it today. Health is a good for which Americans cannot seem to get enough. If the amount of spending that America spends on health care is any indication, then Americans cannot get enough health care services. It is also evidenced by the amount we spend trying to

prolong life at the end of life. While it is unclear how inelastic the demand curve for health services is, it is likely that it is fairly inelastic relative to most other services.

Fourth, and related to the last point, the relationship between a physician and his patient is characterized by an extreme asymmetry of knowledge. The average patient knows very little about the service he is purchasing, and is often at the mercy of the physician. This is in part what the foundation of trust is built upon. Nevertheless, this asymmetry has implications for both the concepts of monopoly, demand, and supply of services.

Finally, physicians' work is technical and knowledge-intensive, yet their medium remains poorly understood. In spite of recent advances in our understanding of pathophysiology, outcomes in medicine are often unpredictable. Despite improvements in the quantity and quality of services provided, much of what physicians do is allow the body to heal itself. When it doesn't, there is little the physician can do.

Appendix 3: Do Financial Incentives Influence Physician Behavior?

A Limited Systematic Review of the Literature

INTRODUCTION

Policymakers cite myriad reasons for spiraling health care costs in America. An aging and overweight population places growing demand on a strained system. Over 50 million Americans lack health insurance and receive otherwise routine care in high cost environments like emergency departments. New and often expensive technologies are being implemented faster than we have evidence for their effectiveness. Malpractice laws encourage defensive medicine. Increasing specialization among physicians leaves patients without a medical home, leading to costly and poorly-coordinated care.

Overlooked, perhaps, is a variable that lies at the heart of every one of these explanations: the decisions of individual physicians. For even if forces beyond control result in the confluence of a physician, a patient, and the universe of health interventions available, it is ultimately the physician who prescribes a drug, orders a test, or hospitalizes a patient. Each of these decisions carries with it a cost.

Understanding physician behavior is paramount to current efforts to reform the American health care system. Many of these efforts are appropriately focused on payment reform. In particular, policymakers believe that changing current financial incentive structure within health care will lead to lower cost and higher quality care. These beliefs are founded on the assumption that physician decision making is influenced, in part, on the financial incentives presented to them. In other words, policymakers assume financial incentives influence physician behavior. In order to substantiate this assumption with evidence, I performed a limited systematic review of the scientific literature.

METHODS

I performed all literature searches using the PubMed (MEDLINE) database on April 7, 2011. I placed no limitations on the searches. The search strategy, outlined in Table 1, involved six searches performed sequentially. The first four searches were performed, PubMed Identifiers (PMID) of all retrieved publications were aggregated, and duplicate publications were excluded. This resulted in a total of 798 unique publications. For search number 5, the list of retrieved PMIDs was compared to the 798 unique PMIDs from the first four searches and duplicates excluded. This resulted in an additional 365 unique articles. For search number 6, the list of retrieved PMIDs was compared to the 798 unique PMIDs from the first four searches and the 365 unique PMIDs from search number 5 and duplicates were excluded. In total, these six searches yielded 1,242 unique journal articles.

From these 1,242 unique publications I chose articles that bore relevance to the question posed herein using three stages of selection. In the first stage, a file containing titles and abstracts from each of the 1,242 publications was produced and reviewed briefly. Both titles and abstracts were skimmed for their relevance to the question. Non-relevant articles were excluded from further consideration. Publications in the first stage were excluded for the following reasons: 1) not in the English language 2) no apparent relevance to the question this research poses 3) published letters or replies to other publications 4) general or overview articles about payment reform 5) publications surrounding the implementation of the Resource-Based Relative Value Scale in the late 1980's and early 1990's. This first stage of review yielded 175 unique publications for further consideration.

The second stage of review involved carefully reading the abstracts of these 175 publications for their relevance to the question posed in this research. Particular attention was paid to the methods section of the abstracts. In this second stage, an article was excluded if 1) it dealt exclusively with theoretically modeled physician behavior including pure econometrics 2) if it was about organizational-level financial incentives pertaining to groups of physicians or hospitals or health systems 3) it pertained to health care

providers in other countries with payment systems significantly different from that of the United States. At the end of this second stage, 24 publications remained for consideration.

The third and final stage of review involved reading carefully through the remaining 24 publications, paying particularly close attention to the methods section. Nine publications were excluded. Of these nine publications, two were unavailable for review, one provided commentary on another study, one pertained to dentists instead of physicians, one was largely anecdotal evidence pertaining to changes at a single practice, two were purely theoretical, and two were overly general.

RESULTS

Appraisals of the fifteen publications included in this systematic review are provided in Table 2. In summary, the fifteen publications included two systematic reviews, one randomized controlled trial, one retrospective case/control study, one cohort study, one natural experiment, six cross-sectional descriptive surveys, and three qualitative studies.

Two systematic reviews evaluating financial incentives for physicians had previously been performed. Chaix-Couturier et al. evaluated the effect of financial incentives on medical practice⁵³. This review involved a search of multiple databases in both the English and French languages from 1993-1999 and evaluated 89 publications. The authors found that capitation or other fund-holding forms of payment were associated with a decrease in overall resource use. Annual caps on physician income were associated with increased referrals to colleagues once caps had been reached. The authors concluded that financial incentives do influence physician behavior and may be used to improve compliance with guidelines or to achieve predefined quality targets. They did acknowledge that many of the studies in their review had short follow up times and few had similar study designs.

Petersen et al. performed literature searches of PubMed (MEDLINE) from 1980-2005 to evaluate the effect of explicit financial incentives on health care quality⁵⁴. The authors reviewed seventeen empirical studies which were then categorized based on both the level of the incentive (system, group, or individual) and type of quality measure studied. Among the studies evaluated, thirteen of seventeen examined process-of-care measures for preventive services. Five out of six studies examining physician-level incentives and seven of nine studies examining group-level incentives found partial or positive effects of incentives on measures of quality. One of two studies of financial incentives at the system level found positive effect on access. The major limitation of the review was the small number of empirical studies available.

One randomized controlled trial, Davidson et al., evaluated the effect on utilization and expenditures of paying higher fees to pediatricians who care for children on Medicaid⁵⁵. Pediatricians who volunteered to participate were randomized to either a capitated payment system or a “Medicaid-like” system in which they received Medicaid payments that were twice the normal rate. The outcomes of interest, including number of office visits, referrals to specialists, and number of emergency department visits and hospitalizations, were compared between these two groups and groups of children being cared for at standard Medicaid rates. The authors found that the number of specialty referrals and hospitalizations decreased among physicians who were capitated relative to other payment groups. Moreover, the number of primary care visits among children cared for at standard Medicaid rates declined significantly relative to children cared for under capitated or “Medicaid-like” plans. Visits to the emergency department declined more among children cared for under the capitation and “Medicaid-like” plans. The authors concluded that physicians will be more likely to serve as case managers for children on Medicaid if higher fees are paid. Weaknesses of this study were that physicians both volunteered and were induced to participate and the study was limited to one county on Long Island, NY.

Whang et al., in a retrospective case/control study, evaluated whether spine surgeons have a financial incentive to recommend spinal fusion over decompression⁵⁶. The study was a response to

accusations that spine surgeons more often recommend fusion because Medicare reimburses at higher rates for it. Using chart review and billing records from 50 patients who received spinal fusion and 50 patients who received decompression, the authors calculated estimates of time expenditures for the two procedures. The authors found that spinal fusion was associated with longer mean surgical time, more postoperative visits, and more clinic visits versus decompression. Despite the higher reimbursement rate for fusion, the authors reasoned, fusion is less financially attractive given the time required on the part of the physician to perform the procedure and manage the patient. The authors argue that this time requirement offsets any financial incentive to recommend fusion. A major limitation of this study is that one has to accept that spine surgeons are aware of the surplus of time required for a fusion procedure and that this outweighs the appeal of higher reimbursement rates. Moreover, there is an element of circular reasoning in this study as the increased reimbursement for fusion likely reflects an understanding that it requires more of the physician to perform.

Safran et al., performed a cohort study that evaluated the difference in quality of primary care delivered in a capitation setting versus a fee-for-service (FFS) setting⁵⁷. The cohort was composed of 1,208 subjects with chronic disease, some of which received care in a FFS setting and some of which received care in a capitation setting. Outcomes of interest were measures of the following: accessibility, continuity, comprehensiveness, coordination, accountability. The authors found that access to health care was perceived to be highest in a capitation setting. Measures of accountability and continuity were highest in the FFS system. Finally, care coordination was highest and care comprehensiveness was the lowest in a capitation setting. Limitations of this study were that many of the outcomes of interest were largely subjective and data on primary care quality was based on patient reports.

Dumont et al., a natural experiment, evaluated changes in physician behavior in Quebec in response to a policy shift in which physicians who had previously practiced in a FFS system were given the opportunity to practice in a mixed payment system that combined a base salary with elements of FFS⁵⁸. The analysis relied on econometric modeling to examine the following outcomes of interest: time spent

seeing patients, time devoted to teaching, volume of clinical services, and average time per service. The authors showed that among physicians who made the switch daily patient volumes were reduced by 6.15 percent, hours seeing patients were reduced by 2.57 percent, average time per service was increased 3.81 percent, and time spent on teaching or administration was generally increased. A major limitation of this study was that the decision to switch to the mixed system was voluntary which may have introduced selection bias.

Six of the studies evaluated in this review were surveys. Hillman et al. explored whether the use of financial incentives by HMOs changed physician behavior towards patients by surveying 283 HMOs⁵⁹. The authors found that both salary-based physician payment and capitation were significantly and negatively associated with rates of hospitalization. Being at risk of not receiving a bonus or receiving less income as in a capitated system was associated with fewer visits per enrollee. Generally, the authors concluded that financial incentives invoke significantly behaviors among physicians. A limitation of this study was that large HMOs were overrepresented.

The authors of the second survey, Landon et al., sought to empirically derive a typology of physician financial incentives using the 2004-2005 Community Tracking Physician Survey Data⁶⁰. The authors found that physicians who own part of their practice, who are paid relative to their productivity, or who are eligible for a productivity-related bonus had higher probability of having an incentive to increase services relative to physicians capitated practices or paid via fixed salary.

The third of six surveys, Quast et al., evaluated whether the quality of care that Medicaid patients receive varies with the type of compensation their physician receives⁶¹. The authors used survey data from one large U.S. state. The authors found that Medicaid patients in managed care organizations (MCOs) that pay physicians via FFS are more likely to receive services for which physicians receive additional compensation. Medicaid patients in MCOs are less likely to receive services for which the physician is not compensated.

A fourth survey, Reschovsky et al., examined how compensation methods and other factors affect physician perceptions of financial incentives using data from the 2000-2001 Community Tracking Study Physician Survey⁶². The authors found seven percent of physicians in the survey report perceiving financial incentives to reduce services to patients. Moreover, 23 percent report perceiving incentives to increase services. The authors found that capitation was associated with a perceived incentive to reduce services while practice ownership, variable compensation, and the prospect of receiving a bonus was associated with perceived incentives to increase services.⁶⁰

The fifth survey, Shafrin et al., examined whether the method of physician compensation affected rates of surgery using 1996/1997 CTS Household Survey data⁶³. The authors evaluated the number of surgeries a patient received in the prior year relative to the type of physician and the type of compensation that physician received. The authors found that for specialists paid under FFS surgery rates increase 78 percent relative to specialists paid under capitation. For primary care physicians paid under FFS, rates increase 84 percent relative to capitation. This study was the most theoretical of the studies included in this review, and relied heavily on complex econometric modeling. The results of this study seem relatively extreme.

The last survey, Shen et al., evaluated whether financial payment incentives influence clinical decisions⁶⁴. The authors created four clinical scenarios in which patient insurance status varied randomly between FFS and capitation. The survey was distributed to a national sample of family physicians. Treatment decisions and “bother scores”, or relative physician discomfort with recommending a particular course of treatment, were analyzed. The authors found that under capitation, physicians were less likely to recommend discretionary services but equally likely to recommend life-saving services. Physicians were significantly more “bothered” making decisions under a capitated system.

There were three qualitative studies included in this literature review. Teleki et al. evaluated physicians’ opinions of financial incentives⁶⁵. The authors relied on interviews and focus groups with physicians from one Preferred Provider Organization (PPO) in California. The authors were primarily

interested in determining which incentives were necessary for physicians to provide higher quality care. The authors found that physicians would be most interested in the following incentives: increased fee schedule (83 percent of respondents), bonuses (70 percent), and comparison of performance with peers (52 percent). Interestingly, the authors found that financial incentives are contingent on physician engagement. Physician who were unaware of or who misunderstood the incentives presented to them were less likely to respond. A major limitation of this study was that the physicians who participated were remunerated and that study was limited to one PPO in California.

The second qualitative study, Tufano et al., examined physicians' and health care leaders' perceptions of the relationship between physician compensation and productivity⁶⁶. The authors interviewed 114 physicians, health care leaders, and group practice administrators from 46 different medical groups in four U.S. states. The authors found that among respondents, and especially group practice administrators, compensation method is perceived to significantly influence physician productivity. Interestingly, 75 percent of the physicians interviewed denied that compensation influenced their daily practice. Major limitations of this study were its highly subjective nature and that the majority of physicians who participated in this study worked under a FFS arrangement.

Finally, Zierler et al., evaluated the relationship between physician compensation and utilization of medical services⁶⁷. The authors surveyed 67 group medical practices in the state of Washington and supplemented this survey with interviews from 72 primary care physicians in 31 of these practices. The authors concluded from their data that compensation drives physician productivity. Compensation was less likely to influence use of ancillary services, patient outcomes, and patient satisfaction. Limitations of this study include the highly subjective nature of the methods. Moreover, the study was limited to physicians in one state and the practices that participated did so voluntarily.

COMMENT

The purpose of this limited systematic review was to determine whether there is evidence in the published literature to support the theory that financial incentives influence clinical decision making among physicians. Based on the results of the fifteen studies appraised here, it is very likely that financial incentives do have an effect on physician behavior. Beyond simply establishing that incentives have an effect on behavior, this review also began to answer more specific questions.

One, do financial incentives have an effect on utilization of services? It is likely that physicians at risk of receiving less income as the number of services they provide increases are less likely to utilize services. Seven of the fifteen studies evaluated here provide evidence that physicians operating under a capitated or otherwise fund-holding paradigm are less likely to utilize services, including hospitalization or referrals to specialists, relative to physicians operating in a fee-for-service or variable pay environment.

Two, do financial incentives have an effect on the quality of services provided by physicians? It is likely that financial incentives do affect the quality of health services provided. Four of the fifteen studies evaluated here provide evidence that physicians practicing in a capitation or fund-holding environment are more likely to coordinate care or act as case managers for patients relative to physicians in a fee-for-service or variable pay environment. Of course, quality is a highly subjective term. If we define quality in terms of accountability, continuity, or comprehensiveness, the evidence reported in this review supports the idea that physicians in a fee-for-service environment are likely to provide higher quality care.

Finally, do financial incentives have an effect on access to care? Six of the fifteen studies reviewed here provide evidence that financial incentives have effects on patient access to care. Chaix-Couturier et al. demonstrate that physicians with a salary cap will refer patients to their colleagues once they have reached their cap, a finding that has implications for patient access. Davidson et al. show higher payments to physicians are associated with less of a decline in clinic visits among otherwise

disadvantaged children relative to lower payment rates. Dumont et al. show that physicians who gave up a purely fee-for-service payment system in favor of a mixed system reduced the number of hours they devoted to seeing patients. To the contrary, Safran et al. show that patient access was highest in capitated payment systems. Generally speaking, studies included in this review support the idea that physicians in a fee-for-service paradigm are incentivized to increase patient access to care. Moreover, while physicians in a capitated environment are less likely to see as many patients as their counterparts in fee-for-service systems, their patients report no decline in access.

This limited systematic review benefited from both a large initial pool of publications for consideration and a diversity of study types among those finally chosen. Together, these fifteen studies provide a broad range of conclusions with varying levels of robustness. There were some limitations to this review. Based on the results of preliminary searches, there is likely much more evidence to support the theory that financial incentives influence physician behavior. Incentive theory has been studied extensively in the economics literature, but much of this study is purely theoretical. Also, hand searches of the fifteen studies included in this review were not performed.

Table 1: Literature Searches Performed

All searches performed on PubMed (MEDLINE) on April 10, 2011 with no limitations

Search Number	Search Terms	MEDLINE Search String	Retrieved Articles	Unique Articles	Selected Articles (%)
1.	“relative value scales and health care reform”	"Relative Value Scales"[Mesh] AND "Health Care Reform"[Mesh]	47	798	154 (19.2%)
2.	“physician payment reform”	("physicians"[MeSH Terms] OR "physicians"[All Fields] OR "physician"[All Fields]) AND payment[All Fields] AND reform[All Fields]	436		
3.	“physician compensation reform”	("physicians"[MeSH Terms] OR "physicians"[All Fields] OR "physician"[All Fields]) AND ("compensation and redress"[MeSH Terms] OR ("compensation"[All Fields] AND "redress"[All Fields]) OR "compensation and redress"[All Fields] OR "compensation"[All Fields]) AND reform[All Fields]	71		
4.	“physician payment incentives”	("physicians"[MeSH Terms] OR "physicians"[All Fields] OR "physician"[All Fields]) AND payment[All Fields] AND ("motivation"[MeSH Terms] OR "motivation"[All Fields] OR "incentives"[All Fields])	312		
5.	“physician compensation behavior”	("physicians"[MeSH Terms] OR "physicians"[All Fields] OR "physician"[All Fields]) AND ("compensation and redress"[MeSH Terms] OR ("compensation"[All Fields] AND "redress"[All Fields]) OR "compensation and redress"[All Fields] OR "compensation"[All Fields]) AND ("behaviour"[All Fields] OR "behavior"[MeSH Terms] OR "behavior"[All Fields])	377	365	14 (3.8%)
6.	“physician compensation decisionmaking”	("physicians"[MeSH Terms] OR "physicians"[All Fields] OR "physician"[All Fields]) AND ("compensation and redress"[MeSH Terms] OR ("compensation"[All Fields] AND "redress"[All Fields]) OR "compensation and redress"[All Fields] OR "compensation"[All Fields]) AND ("decision making"[MeSH Terms] OR ("decision"[All Fields] AND "making"[All Fields]) OR "decision making"[All Fields] OR "decisionmaking"[All Fields])	130	79	7 (60.7%)
All Searches			1373	1242	175 (14.1%)

Table 2: Review of the Relevant Literature
Studies listed alphabetically by primary author

Citation	Study Purpose	Study Design	Methods/Interventions	Results	(+) Strengths/ (-) Limitations / Comments
Chaix-Couturier, 2000	To evaluate the effect of financial incentives on medical practice	<i>Systematic review</i> Retrieved 130 articles Reviewed 89	English and French Multiple databases 1993-1999	-capitation or other fund-holding ass'd with decrease in resource use -annual cap on physician income ass'd with referral to colleagues once cap reached -incentives can improve compliance with guidelines or to achieve targets	(-) few studies had similar designs, so difficult to draw unifying conclusions (-) studies generally had short FU
Davidson, 1992	To evaluate the effect of Medicaid +FFS vs prepaid arrangements on primary care physicians caring for children on Medicaid	<i>Randomized Controlled Trial</i> 80 physicians participated voluntarily on one county on Long Island	Assigned physicians to either prepaid system or Medicaid at market rates eg FFS (vs regular Medicaid) Prepaid physicians responsible for end of year deficits, but with caps Outcomes: utilization and expenditures	-number of specialty referrals and hospitalizations decreased among physicians who were capitated relative to other groups -primary care visits among comparison group declined significantly relative to capitated or Medicaid+FFS groups -visits to ED/clinic declined more in capitation and Medicaid+FFS groups -physicians will continue to treat Medicaid patients and serve as case managers if higher fees are paid	(+) attempt to control for baseline differences between patient populations (-) voluntary participation, likely selection bias, (-) limited to one county (-) physicians induced to participate and paid higher fees (-) patient were guaranteed Medicaid x 1year
Dumont, 2008	To analyze effect of new payment system in Quebec on physician behavior	<i>Natural Experiment</i> FFS ->mixed system (base salary+/- FFS) panel survey and administrative data	Econometric modeling: Outcomes: time seeing patients, time devoted to teaching, volume of clinical services, average time per service	Among physicians who changed from FFS -> mixed system: reduced volumes 6.15%, reduced hours seeing patients by 2.57%, avg time per service increased 3.81%, induced more time spent on teaching/administration	(+) comprehensive data (-) choice to change payment method was voluntary, so there may be self-selection
Hillman, 1989	Does use of financial incentives by HMO's change physicians' behavior towards patients?	<i>Survey</i> survey data of all 595 HMO's in existence in 1987	Regression modeling: HMO Incentives, Descriptors, Market-Area Characteristics vs Outcomes: Rate of hospitalization, Visits per enrollee, Break-even status	Salary and capitation significantly and negatively ass'd with hospitalization rate; personal risk of not getting bonus or receiving less income ass'd with fewer visits per enrollee; generally, use of financial incentives make significant difference in resource use in HMOs	(+) included variables for market characteristics and practice variation (-) did not account for all possible incentives (non financial) (-) 48% (283) responses; large HMO's overrepresented in study

Landon, 2009	To empirically derive a typology of physician financial incentives	<i>Survey</i> 2004-05 Community Tracking Physician Survey Data (n=6628)	Regression modeling: Physician demographics, practice, and market characteristics vs probability of having an incentive to increase services (outcome)	Physicians with partial practice ownership, pay related to productivity, eligibility for bonus, or report that productivity related to their bonus had higher prob of having incentive to increase services vs those in capitated practices or paid via fixed salary	(+) included demographic and market characteristic variables; national representative sample (-) model based on one measure of physicians' perceived incentive to increase services
Petersen, 2006	To assess the effect of explicit financial incentives on health care quality	<i>Systematic review</i> of PubMed literature 1980-2005 17 studies evaluated	Review of empirical studies; categorized incentives by level (individual, group, system) and type quality measure rewarded	13/17 studies looked at process-of-care measures for preventive services. 5/6 physician-level and 7/9 group-level studies found partial or positive effects on quality; 1 of 2 studies of financial incentives had positive effect on access	(-) Few empirical studies of explicit financial incentives available (-) No studies examined optimal duration of incentives
Quast, 2008	Does quality of care that Medicaid patient receive vary with type of physician compensation?	<i>Survey</i> MCO (managed care organization) Medicaid data from de-identified large U.S. state 2004; used only "healthy" children	Regression analysis: outcome: binary variable (1= proper care rec'd, 0)	Medicaid patients in MCOs that pay physicians via FFS are more likely to receive services for which PCPs receive additional compensation; less likely to receive services for which PCP is not compensated	(+) adjusted for confounders like demographics, MCO characteristics (-) study examined only 8 MCOs in one state (-) did not identify exactly which PCPs are paid with FFS vs capitation
Reschovsky, 2006	To examine how compensation methods and other factors affect physician perceptions of financial incentives	<i>Survey</i> National survey data from 2000-01 Community Tracking Study Physician Survey (n=12406)	Logistic regression Dependent variable: survey question about perceived incentives within practice Independent variables: compensation method, group and market characteristics	7% of physicians in survey report financial incentives to reduce services to patients; 23% report incentives to increase services Capitation/Group revenue associated with incentives to reduce services; practice ownership/variable compensation/bonuses associated with incentives to increase services	(+) nationally representative data (-) dependent variable in this study highly subjective; must assume that physician perceptives drive behavior rather than the actual system in which they operate (-) captured health plan incentives relatively crudely
Safran, 1994	To examine the difference in quality of primary care delivered in prepaid vs FFS health systems	<i>Cohort study</i> n=1208 chronic disease patients with either FFS or IPA/HMO insurance (prepaid); 303 practices in 3 cities	Outcomes of interest: accessibility, continuity, comprehensiveness, coordination, accountability	-Access highest in prepaid systems (IPA/HMO) -Organizational accountability and continuity highest in FFS system -Coordination highest and comprehensiveness lowest in HMOs	(-) outcomes of interest were largely subjective; unsure what is actually "best" (-) data on primary care quality is based only on patient reports

Shafirin, 2010	Does method of compensation of providers affect rates of surgery?	<i>Survey</i> 1996/1997 CTS Household Survey data	Econometric modelling: Number of surgeries a patient rec'd in the prior year vs type of physician and type of compensation	For specialists paid under FFS (vs capitation), surgery rates increase 78% For primary care physicians paid under FFS (vs capitation), rates increase 84%	(+) adjusted for some demographic confounders (-) likely an overly simplified view Results seem somewhat extreme
Shen, 2004	Do financial payment incentives influence clinical decisions?	<i>Survey</i> Physician survey of 4 clinical scenarios; national sample of family physicians	Patient insurance status varied randomly between FFS and capitation among the 4 cases; used treatment decisions and "bother scores"	Under capitation, less likely to perform discretionary services but equally likely to perform life-saving services Physicians significantly more "bothered" making decisions under capitated system	(+) sample of physicians was drawn randomly nationwide (+) adjusted for potential confounders (+) 72% physician response rate
Teleki, 2006	To explore California physicians' opinions of incentives	<i>Qualitative, cross-sectional study</i> ; interviews and focus groups of physicians in 1 PPO	incentives needed to provide higher quality care	incentives that physicians would be most interested in to provide higher quality care: increased fee schedule (83%), bonuses (70%), comparison of performance with peers (52%)	(+) physicians surveyed were stratified demographically (-) only physicians in CA, physicians remunerated, small n (-) found that financial incentives are contingent on physician engagement
Tufano, 2001	To examine physician and leader perceptions of relationship between physician compensation and productivity	<i>Qualitative study</i> : Interviews with 114 physicians, leaders, and group practice administrators from 46 medical groups in 4 states	Individual interviews; transcripts reviewed by groups of physicians /economists/ other researchers	Compensation method is perceived to be a significant influence of physician productivity, especially among group practice leaders; 75% of physicians denied compensation influencing daily practice	(-) potential for selection bias in how informants were chosen although efforts were made to obtain representative sample; majority of physicians interviewed had productivity-linked compensation (-) highly subjective
Whang, 2008	Do spine surgeons have a financial incentive to recommend one type of surgery over another?	<i>Retrospective case/control</i> ; 50 cases and 50 controls	fusion procedure (higher Medicare reimbursement) vs isolated decompression; chart review, billing records	fusion ass'd with longer mean surgical time, more post-op visits, and more clinical time vs decompression =suggest surgeons have less incentive to recommend a procedure that requires more time and resources	(-) small n, from single practice, mostly female (-) authors make the assumption that b/c fusion requires more time, physicians are disincentivized to offer it despite being paid more
Zierler, 1998	To examine the relationship between physician compensation and utilization of medical services	<i>Qualitative study</i> surveys of 67 group medical practices in state of Washington;	Survey data supplemented with interviews with 72 primary care physicians from 31 of these 67 practices	Compensation drives productivity Compensation perceived to be less likely to drive use of ancillary services, patient outcomes, satisfaction	(-) limited to primary care physicians in one state (-) highly subjective (-) practices that participated were volunteers

Appendix 4: Proposed Payment Models in ACOs

How will physicians and hospitals receive payment in an ACO? The answer to this question is a work in progress. Several models for provider reimbursement have been proposed in the past, including both “one-sided” and “two sided” models of shared savings as well as a partial capitation model (p. 984).¹² Each of these models lies at a unique point along a risk-shifting continuum. At one extreme of this continuum lies the current fee-for-service model in which providers bear no financial risk in managing their patients. At the other end lies capitation, in which providers assume much of the risk (p. 21).⁶⁸

ONE-SIDED MODEL OF SHARED SAVINGS

In the one-sided model, ACOs carry no performance risk. If the per capita beneficiary expenditure within a particular ACO exceeds the benchmark set forth by the Centers for Medicare and Medicaid Services (CMS), the ACO does not incur a financial loss. However, if the per capita beneficiary expenditure within the ACO is less than the CMS benchmark by a specified margin and quality benchmarks are achieved, the ACO receives a percentage of the difference between the benchmark and actual expenditure as a financial bonus (p. 984, p. 1199).^{12, 13} This bonus was as high as 80 percent of the savings in the Physician Group Practice Demonstration (PGPD) but is currently proposed to be between 50 and 60 percent for ACOs going forward (p. 1199).¹³

This system is “one-sided” because providers enjoy the potential for financial gain but do not expose themselves to financial loss if they underperform. Since providers are largely shielded from the possibility of financial loss for underperformance, the model is more likely to gain acceptance among physicians relative to other models proposed here. Yet a fundamental tenant of this model remains reimbursement via a fee-for-service mechanism. In this respect the one-sided model fails to disincentivize volume and intensity of services delivered and fails to reimburse physicians for many cost effective

services (p. 23).⁶⁸ Theoretically, the CMS will have to curb reimbursement for certain lucrative services in order to stimulate physicians to try to beat the benchmark. For while it may be argued that the bonus that ACOs would receive for beating the benchmark is incentive enough to dissuade providers from billing for excessive and costly care, it is easier to argue that providers will recuperate an otherwise forgone bonus payment by providing even more services. In other words, earning some percentage of shared savings will never make up financially for what providers could earn by continuing the status quo unless the status quo is altered.

Moreover, to entice ACOs to accept the one-sided payment model and develop new tools to enhance cost savings, they will have to know in advance what percentage of savings they will keep. If an ACO spends \$100,000 to create a program to reduce hospitalizations among its beneficiaries and this new program saves Medicare \$150,000, then the financial gain or loss to the ACO depends heavily on the percentage of shared savings they keep. If that figure is 50 percent, then the ACO will incur a \$25,000 loss. If that figure is 75 percent, the ACO will achieve a net gain (p. 23).⁶⁸

TWO-SIDED MODEL OF SHARED SAVINGS

The two-sided model of shared savings represents an incremental step down the risk-shifting continuum away from the current fee-for-service system towards a fully capitated system. This model embraces the same incentives as the one-sided model but adds the prospect of financial penalty for failure to perform.

The two-sided model requires physicians to assume some degree of performance risk. Again, ACOs would be paid by Medicare on a fee-for-service basis. In the event that the per capita beneficiary expense within an ACO beat the CMS benchmark by a specified margin, the ACO would receive a percentage of the difference in the form of a bonus. In contrast to the one-sided model, however, in the

event the per capita beneficiary expense was higher than the CMS benchmark, a financial penalty would be incurred by the ACO.

The two-sided model provides relatively stronger incentives for ACOs to achieve cost and quality benchmarks because it not only rewards ACOs for their successes but punishes them for their failures. The major advantage for Medicare is that the addition of penalties for exceeding benchmarks not only incentivizes ACOs to meet benchmarks but provides Medicare with a more rigorous tool for cost containment.

However, the two-sided model would be significantly less palatable to physicians. Unless participation in this model was mandated by CMS, ACOs would be unlikely to participate. Moreover, the government would be faced with a difficult theoretical concern: How to effectively hold ACOs responsible for performance risk (the cost of treating illness) without holding them responsible for insurance risk (whether or not a patient will fall ill). In a one-sided model in which there are no penalties for underperforming it is arguably less important to ensure that ACOs are accountable only for performance. In a two-side model where physicians are penalized for failure, however, there needs to a more rigorous delineation between insurance and performance risk because physicians do not possess the training or tools to manage insurance risk (pp. 20-21).⁶⁸

PARTIAL CAPITATION

Farther down the risk-shifting continuum from the two-sided model is partial capitation. This model of ACO reimbursement differs from the one-sided and two-sided models because it requires an ACO to assume full performance risk for a subset of services. Although this model was discussed early in the deliberations over ACOs, it is not a part of current CMS proposals.

In a partial capitation model an ACO would be paid a flat fee per patient for a given set of services plus either a bonus payment or penalty depending on whether certain cost or quality benchmarks

were met by the ACO. Presumably the cost and quality benchmarks in the partial capitation model would be risk adjusted for the relative differences in overall health of Medicare beneficiaries between ACOs. Some envision the capitation payment applying only to outpatient services, while inpatient services would still be reimbursed under a fee-for-service arrangement (p. 27).⁶⁸

The partial capitation model has the most potential to curb costs in health care. By paying ACOs a flat sum for a set of services, it essentially forces providers to make thoughtful choices in order to maximize efficiency and minimize costs. In this manner the partial capitation model effectively shifts all performance risk to ACOs. Presumably more sophisticated measures would have to be employed in order to accurately assess ACO performance in this model.

The partial capitation model has disadvantages. First, both physicians and patients will likely find the idea of capitation somewhat unpalatable after experiments with fully capitated payment schemes in the 1990's. There will likely be unwillingness on the part of providers to move towards this model, at least in the near future. Moreover, CMS will have to identify an effective way to transfer to providers pure performance risk without insurance risk. A major drawback of a fully capitated system is that physicians are often responsible for managing insurance risk as well and physicians are inherently ill-equipped to manage this risk.. CMS will likely need to risk adjust their payments to ACOs to account for variations in beneficiary characteristics (p. 1420).⁶⁹

It is also conceivable that under a partially capitated system some ACOs will try to avoid "at risk patients." Although PPACA explicitly calls for CMS to monitor ACOs for dumping at risk patients, this will likely require resources to implement. One final drawback is that, at least in the near term, this model is reserved for only a subset of ACOs that the government believes is capable of managing this type of risk. Thus the partial capitation model isn't one that will be rapidly implemented.

Appendix 5: The Resource-Based Relative Value Scale (RBRVS)

BACKGROUND

How should America pay its physicians? The United States has limited experience answering this question. Less than one-hundred years ago physicians provided their services privately in exchange for a fee. Patients who could pay did so, and those who could not were considered charity cases (p. 2638).⁵⁰ Modern health insurance did not emerge until the 1920's, and it wasn't until the 1940's and 1950's that a significant number of Americans were enrolled in health plans (p. 233).⁷⁰

In 1965, as Medicare emerged as the largest third-party purchaser of health services in America, the government began playing a significant role in physician reimbursement. When Medicare was enacted, legislators had limited time to consider physician compensation.⁷¹ Blue Shield plans had recently implemented a charge-based system of physician payment known as “customary, prevailing, and reasonable” or, more commonly, “usual, customary, and reasonable (UCR).”

In the UCR system, a physician submitted his bill to either the patient or Medicare. Medicare either paid the physician directly or reimbursed the patient if the patient paid up front. Physician charges were subject to screens, but the only criteria Medicare used to evaluate charges were similar charges by the same physician in recent years, charges for the same service by other physicians in the same geographic area, and the loosely-defined concept of “reasonableness.”^{51, 71}

By the early 1980's, the UCR methodology had come under increasing scrutiny. Critics argued the UCR was inflationary and led to significant price distortions across services and geographic areas.^{40,}

⁷² In light of this growing dissatisfaction with the UCR system, and amidst the backdrop of rapidly rising Medicare Part B costs, Congress mandated a study of relative values of physician services in 1984. Two years later, Congress set up the Physician Payment Review Commission (PPRC) to establish a rational methodology for a physician fee schedule.

At the same time, the Health Care Financing Administration (HCFA) contracted with Dr. William Hsiao and colleagues of Harvard University and subcontracted with the American Medical Association (AMA) to develop a new Medicare Fee Schedule (MFS) based on resource inputs and relative values. In conjunction with this effort the AMA created the Technical Consulting Group (TCG), a group of physician advisors, and the Cross Specialty Panel (CSP), a subset of the TCG, to help identify equivalencies across specialties. Originally, the HCFA provided funding to develop new methodology for only 12 specialties. Six more specialties were eventually added at the initiative of individual specialist societies.⁷³

Efforts by Hsiao's group focused on defining the various resource inputs required in the periods before, during, and after a particular health service was performed. Once Hsiao's group had developed their model, the Resource-Based Relative Value Scale (RBRVS), they reported the results of their work to Congress via the PPRC in 1989. In that same year legislation was passed adopting their model, the RBRVS, in a transitional stage as of January 1, 1990. On January 1, 1992, the HCFA implemented a modified version of the RBRVS for Medicare billing. This has been the prevailing methodology of physician payment since.

RBRVS METHODOLOGY

The RBRVS payment methodology implemented in 1992 and in use today is based on the relative amount of resources required to provide a particular service. When Hsiao and his colleagues developed the RBRVS, they surveyed several thousand physicians across multiple specialties and geographic areas to systematically identify the resources required by physicians to offer specific health services. The subset of physician services that were directly evaluated became benchmarks both within their relevant specialties and across specialties. Values for those services not directly evaluated were extrapolated.

The inputs determined in these efforts formed the building blocks for the Relative Value Unit (RVU), the cornerstone of the RBRVS methodology. The RVU represents a non-monetary measurement of the relative amount of resources that a physician must implement in order to provide a service. It reaches beyond the UCR in that it provides a rational accounting for the resources required to offer a health service.

In practice, each health service or procedure performed by a physician has an RVU that corresponds to a Current Procedures and Terminology (CPT) code. The RVU in turn has three components, each of which is associated with a geographic practice cost index (GPCI): physician work RVU, practice expense RVU, and malpractice RVU. The physician work RVU accounts for 55% of the total RVU and reflects the time and intensity of the work performed. The practice expense RVU accounts for 41% of the total RVU and includes the cost of equipment, maintaining a practice, and other practice-related costs. The malpractice RVU accounts for the remaining 4% of the total RVU and represents costs related to malpractice premiums (p. 173, p. 178).^{74, 75}

Thus to calculate a Medicare payment for a particular CPT code, the three component RVU's adjusted for their respective GPCIs are summed and multiplied by a conversion factor that converts the non-monetized RVU into a monetary amount. This conversion factor is set by CMS each year, and is based on a variety of factors, including the Medicare Economic Index, an expenditure target for "performance adjustment," and other adjustments including "budget neutrality."⁷⁶

METHODOLOGICAL FLAWS

The RBRVS was a significant improvement from the UCR. Unlike the UCR, the RBRVS provided an arguably rational valuation of physician services based on measurable components of those services. That said, the RBRVS was a product of research and as such it was not immune to the

limitations of such an enterprise. Fortunately the research group that developed the RBRVS embraced transparency. Hsiao and his colleagues published their methods and results over several years and invited scrutiny from stakeholders.^{40, 77-79} This scrutiny revealed flaws and questionable assumptions. Some of these flaws were amended before the methodology was implemented by Medicare in 1992. Other assumptions were acknowledged as limitations of research and accepted as they were.

One notable flaw was the relatively small number of services and procedures that were systematically evaluated in order to develop the RBRVS. Of 7,000 possible CPT codes to evaluate, the authors studied only 373 (5.3 percent) and extrapolated values for the remaining codes within a “family” of similar services. An example of this extrapolation is as follows:

In general surgery, for example, we chose uncomplicated inguinal hernia repair as the reference service, and assigned it a value of 100. A surgeon who judged the work of a lower anterior resection for rectal carcinoma to be 4.5 times that of an uncomplicated inguinal hernia repair would assign that service a rating of 450. (p. NS63)⁴⁰

While these 373 CPT codes represented 36.7 percent of annual Medicare billings and thus constitute an important segment of physician services, they represent only a fraction of the services that physicians provide.

More importantly, efforts at extrapolating relative values for these related services presented unusual results which led critics to question the validity of the approach. For example, extrapolated values for many physician services rendered to new patients in several primary care specialties were lower than values for the same services provided to established patients (p. 795).⁷³ Clinically, this is counterintuitive. Generally speaking, new patients require more intensive work than established patients. In this respect, the research methodology likely failed to accurately assess some parameters related to the relative value of certain services. This in turn had an adverse effect on the entire spectrum of other physician services.

Critics of the RBRVS also cite the poor response rate among physicians surveyed about the 373 CPT codes for services that were researched by Hsiao and his colleagues. Physician responses to this survey were the primary mechanism by which Hsiao and his colleagues established scales of relative value for physician services within and between specialties. Values for all 7,000 CPT-coded physician services were in turn derived from this survey data, as described above.

A total of 3,164 physicians were chosen by Hsiao and his colleagues from the AMA's 1983 physician master file to represent all specialties and 10 geographic regions. Of these, only 1977 (62.5 percent) completed the survey. Moreover, most respondents failed to answer all the survey questions. Despite the fact that a significant portion of the physicians surveyed did not answer some or all of the questions, Hsiao and his colleagues relied on the overall response rate among specialty groups to construct scales of relative value. It is arguable, then, that conclusions essential to the methodology of the RBRVS were drawn from an insufficient pool of respondents (p. 795).⁷³

Another critique of the RBRVS focuses on flaws in calculating practice and opportunity costs. Hsiao and his colleagues calculated a practice cost factor that was unique to each specialty and thus applied to every service or procedure within that specialty, but not among specialties. This practice cost factor thus varied between specialties, even if it was for the same service.

The problem with this approach is threefold. One, assigning different practice cost factors on the basis of specialty creates substantial payment discrepancies between physicians for the same service. For example, if an internal medicine physician and family physician both evaluate a new patient with 2 chronic diseases in a 30-minute visit but the practice cost factor is higher for the family physician, then the family physician will be paid more for the same service. Two, some specialties utilize high-cost technology for a minority of procedures but do not use it for most procedures. However, under the RBRVS methodology all services and procedures within that specialty would receive the same practice-expense related "boost" in payment regardless of whether a high cost technology was utilized during a particular service (p. 2442).⁷² While there were some modifications made to this methodology before

RBRVS was implemented in 1992, practice cost remains an especially contentious issue in debates over Medicare payment reform (p. 1202).⁸⁰ Third, Hsiao and his colleagues relied on historical data from the 1983 Physician Practice Cost and Income Survey to compare practice cost differences between specialties. By 1992, when the RBRVS was implemented, this data was very out of date (p. 174).⁷⁴

RELATIONSHIP WITH THE AMERICAN MEDICAL ASSOCIATION

Prior to the implementation of the RBRVS, generalists who relied primarily on evaluation and management (E&M) codes were traditionally undercompensated relative to procedure-oriented specialists. Moreover, since physician charges for a given service were typically higher in more urban, affluent areas under the UCR system, physicians were disincentivized to practice in rural, underserved areas. The RBRVS was supposed to resolve these disparities by using a rational methodology to create equivalent units of value between specialties and across practice settings.

In 1992, just prior to the implementation of the RBRVS, Hsiao and his colleagues predicted payments for most E&M services would rise 15 to 45 percent, while payments for invasive services and diagnostics would decrease 20 to 30 percent (p. NS77).⁴⁰ Initially, the results looked promising. From 1991 to 1997, Medicare payments to family physicians increased by 35 percent while payments to ophthalmologists decreased by 18 percent and payments to cardiothoracic surgeons decreased by 9 percent (p. 174).⁷⁴ Almost twenty years later, however, these initial favorable changes appeared to have been a short term success. In recent years, there has once again emerged a growing pay divide between generalists and specialists.

Critics of the RBRVS cite its close ties with the AMA as a reason for this growing divide. The AMA played a significant role in the development of the RBRVS and it continues to play a significant role in shaping RVU values. The AMA-sponsored Relative Value Scale Update Committee (RUC) advises CMS on changes to specific RVUs at five-year intervals. If history is any indication, the RUC

wields substantial power. In the past twenty years, more than 90% of the RUC's recommendations to CMS have been accepted and implemented.

The controversy surrounding the RUC and RVUs stems from the RUC's composition. The RUC has 29 members, 6 of which are administrative representatives such as the chair, an AMA representative, and four other general representatives. The remaining 23 seats on the RUC are appointed by national medical societies to represent their respective specialty group. Only 3 of these 23 seats rotate on a 2-year basis, and committee meetings are closed. Each seat has one vote.

While over 50 percent of Medicare's annual billings are related to primary care services, at most 15 percent of the representation on the RUC is by primary care physicians: one representative of family medicine, one from internal medicine, and one from pediatrics. Thus the RUC – and the AMA – is viewed by many physicians as a vehicle for specialists to exert their influence over the Medicare RBRVS methodology (p. 2309).^{37, 81}

Even if one was to believe that primary care was fairly represented in the RUC review process, there are nevertheless certain challenges inherent in the practice of primary care that systematically put generalist at a major disadvantage in the current fee-for-service, RBRVS-based payment system. Primary care physicians cannot take advantage of evolving efficiencies. The reason for this is that evaluation and management of a typical outpatient has changed little in 20 years. A typical primary care visit requires little technology beyond an exam room and a conversation. The efficiency of a primary care visit can only be increased so much; every visit requires a history and physical, and these can be completely only so rapidly. Few technologies can justifiably be implemented. To make matters more complicated, as our collective understanding of disease has deepened and the range of treatments available has grown, the nature of the typical patient encounter has grown increasingly complicated.

In contrast, the technology available to a specialist focusing on a very specific problem or performing a particular procedure or diagnostic test has evolved considerably. As new technologies have evolved and specialists have become more efficient at utilizing them, the time required for a procedure or

diagnostic test has decreased while the volume of procedures per unit of time has increased. For example, Medicare currently compensates a gastroenterologist for 70 minutes of time per colonoscopy. Any medical student knows that a trained gastroenterologist requires but perhaps a third of this time to complete a colonoscopy. Thus, not only are gastroenterologists being remunerated for the opportunity costs associated with three years of fellowship, they are also being paid a premium for the efficiency they gain by completing a fellowship – namely, the ability to perform colonoscopies three times as quickly as Medicare assumes. That RVUs are adjusted only every five years only serves to exacerbate the fallacies of these assumptions.

The net result is a mounting financial stress on Medicare. Specialists continue to evolve, increasing the volume of their services and utilizing new technologies to provide new services. Meanwhile, values for RVUs have rarely decreased in the past twenty years. In the last review in 2006, for example, the CMS raised values for 227 services and lowered them for only 26 (pp. 1201-2).⁸⁰ Not only have values generally increased, but RVUs for more specialty services have been added.

In an attempt to contain swelling costs, Medicare has made budget-neutrality adjustments. The net effect is that payment for all services is eroded to some extent, but specialists are able to maintain their current compensation levels by increasing the volume of services they provide. Primary care physicians cannot respond to the erosion of their evaluation and management codes being eroded because they cannot increase volume. In effect, then, evaluation and management has absorbed the majority of reductions to maintain budget neutrality (p. 1202).⁸⁰

An example of this phenomenon was apparent in 2006, at the time of the last CMS/RUC review of RVU values. At that time a concession was made by the RUC to raise the work-related RVU for an intermediate visit for an established patient by twenty percent. However, because of budget neutrality constraints and the RUCs unwillingness to decrease RUVs for other services, Medicare adjusted the conversion factor downward which led to a net increase in evaluation and management services of only eight percent. In the case of a new patient, there was a net decrease of five percent (p. 1202).⁸⁰