
An Economic Analysis of Outcomes-based Payment in Healthcare

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ABSTRACT

The United States spends significantly more on healthcare than any other developed country in the world, yet the US experiences relatively poor health outcomes when compared to other developed nations. To address this issue, the Patient Protection and Affordable Care Act (ACA) of 2010 includes directives to “improve the quality and efficiency of healthcare” by “linking payment and quality outcomes.” An outcomes-based payment model links provider payment directly to patient outcomes and the cost of care to change provider incentives and improve the value of care provided. In this paper, I analyze the current fee-for-service payment model in the United States healthcare system and the potential market corrections that can be made through the implementation of an outcomes-based payment model. This analysis is conducted utilizing standard and behavioral economic theory with accompanying practical recommendations for successful implementation.



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INTRODUCTION:

Under the Patient Protection and Affordable Care Act (ACA), Congress enacted legislation to “improve the quality and efficiency of healthcare” by “linking payment to quality outcomes” (The Patient Protection and Affordable Care Act, 2010). Through the years since this legislation was enacted, there have been many initiatives aimed at achieving this goal, referred to as value-based purchasing, pay-for-performance programs, or the outcomes-based payment model. The objective of these initiatives is to increase the value of care that patients receive from healthcare providers through treatment and other health services. Value of healthcare in this instance is defined as the outcome of health services divided by cost of those services (see Figure 1). This means that the highest value healthcare is achieved when patients obtain the best possible medical outcome for the lowest possible cost. Efforts to improve health outcomes and simultaneously decrease the cost of healthcare may initially appear to push the system in opposite directions. Intuitively, one might assume that higher-priced treatments or an increase in the quantity of care are required to improve health outcomes, which would also increase the cost of care along with it. The outcomes-based payment model is designed to better align provider incentives with the interests of both patients and payers to change the behavior of the healthcare providers and increase the value of care provided. Past federal programs have seen some success in improving the value of care by implementing outcomes-based payment models in programs such as the Accountable Care Organization (ACO) program, but the results of these programs have been inconsistent across organizations where they have been applied (Tu et al., 2015). By carefully designing a program grounded in economic and behavioral theory, policy makers have the opportunity to improve the success of outcomes-based payment programs in the United States healthcare system and promote higher value care for patients throughout the country.

$$\text{Value of Care} = \frac{\text{Health Outcome}}{\text{Cost of Care}}$$

In this paper, I first analyze the structure of the current healthcare system in the United States and the issues associated with the prevailing fee-for-service model used throughout the country. Next, I examine the outcomes-based payment model within the landscape of the US healthcare system from an economic lens and potential issues with the new payment model. This is followed by an exploration of possible applications of behavioral economic theory to improve the implementation and success of outcomes-based payment models. Finally, I recommend key components for successful implementation of an outcomes-based payment in the United States healthcare system.

CURRENT PAYMENT MODEL IN THE UNITED STATES HEALTHCARE SYSTEM

BACKGROUND

Within the US healthcare system, the primary stakeholders are patients, providers, payers. Patients are the recipients of care, the people who are being treated by the healthcare provider. The provider can either refer to organizational providers, such as hospitals or healthcare groups, or individual care providers, such as doctors, nurses, and physician assistants. The payer for healthcare is the individual or entity that pays for the care

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provided, which, while there may be out-of-pocket costs associated with care, is often not the patient. In the United States, 91.7 percent of people have some form of health insurance (Keisler-Starkey & Bunch, 2022). The majority of the healthcare costs for these insured patients are paid by the insurance company, making insurers the primary payer for most of the care provided in the country. The United States has a mixed insurance model, sometimes referred to as semi-private, where health insurance is provided both publicly by the government as well as privately by health insurance organizations and employers. The term semi-private is used to highlight that while the majority of healthcare is paid for by private entities, about 40 percent of total healthcare spending in the United States comes from the Centers for Medicaid and Medicare Services (CMS), the federal financing arm for healthcare in the United States (Catalyst, 2018). This mix of private and public payers expands the problem of improving the value of healthcare beyond just policy makers to private insurers as well.

Historically, the US has almost exclusively relied on a fee-for-service payment model within the healthcare system. A fee-for-service payment model is where healthcare providers are paid for each service or item provided to a patient. Each item or service that is provided during the episode of care (e.g., physician time and services, medical devices, pharmaceuticals, fees for space and time) is discretely billed to the payer as an individual line item. This standard fee-for-service model does not incorporate patient outcomes or quality of care as part of the equation, it relies solely on the types and quantity of care provided. Because there is no direct accounting for patient outcomes, this payment model creates a strong financial incentive for providers to provide more and higher cost services regardless of the value (outcome over cost) to the patient.

The US healthcare system has experienced exorbitant spending on healthcare as compared to the rest of the world. In 2019 the US spent \$3.8 trillion on healthcare, accounting for nearly 18 percent of the \$21.4 trillion Gross Domestic Product (GDP) that year (Rama, 2021). This averages to about \$11,582 in healthcare spending per person during the year. When compared to other developed nations within the Organisation for Economic Co-operation and Development (OECD), the country whose average per capita healthcare spending was closest to the US was Switzerland where \$7,732 was spent per person in the same year (Kamal et al., 2021), 33 percent less than US spending. Total Swiss healthcare spending is approximately 12 percent of the Swiss national GDP. When compared to the average healthcare spending among all comparably wealthy OECD nations, the US spends more than double on annual healthcare expenditures per person.

The high level of healthcare spending in the United States has not been accompanied by correspondingly high healthcare outcomes. The United States has an average life expectancy of 78.6 years, which is the lowest among comparable OECD member countries and two years shorter than the OECD average (Tikkanen & Abrams, 2020). The US also ranked last in the Healthcare Access and Quality (HAQ) index among selected developed nations (Kurani & Wager, 2021). While these metrics do not imply that the US has the poorest performing healthcare system in the world, they do demonstrate that when compared to other sizable countries of comparable wealth, the US experience lower health outcomes and higher healthcare spending, and thus lower value, than its counterparts.

Within the United States system itself, there is also large variation in the value of healthcare provided across the country and among providers. McKinsey & Company, a large multinational consulting group, evaluated the cost of care for individual episodes of care for specific health conditions, including simple upper respiratory infection, pregnancy, attention deficit hyperactivity disorder, and total hip replacement. They found that even after controlling for patient demographics, treatment location, and patient risk levels, episodes of care for the same diseases could cost 30 to 600 percent more

(depending on the condition analyzed) without any discernible difference in the quality of the health outcome for the patient (Latkovic, 2013). With costs for the same treatment varying by this magnitude without any impact on the health outcome, the value of the care received fluctuates greatly even within the US system. In the same paper, McKinsey & Company estimated the potential savings associated with increasing the value of care for patients through outcomes-based payment models could be over a trillion dollars in the US healthcare market over the course of a decade (Latkovic, 2013).

FEE-FOR-SERVICE PAYMENT MODEL

The fee-for-service (FFS) payment model has been the most prevalent payment model in the US healthcare system. Because the fee-for-service model pays for each service or product received (e.g., office visit, blood test, MRI), it rewards providers that give the highest-priced or highest quantity of care without regard for quality of care. Prices are generally negotiated between payers and providers in the FFS model, so we can assume that most, if not all, services provide at least some profit to the provider. This creates a de facto cost-plus pricing model where providers generate profit from each service provided, incentivizing higher quantity of care. This incentive structure does not consider the level of need for the care provided, the amount of care provided per person, the cost of the care, or how much benefit was derived from said care – it simply relies on the quantity of healthcare services that are provided to a patient to determine the payment that a provider should receive.

The sole focus on quantity of care provided under the FFS payment model produces a set of incentives for provider behavior. Assuming that healthcare providers are self-interested, rational actors, then this means that providers are acting in an attempt to maximize their own utility. The way for providers (or any rational actor for that matter) to maximize their utility is to act in a way that maximizes their benefits and minimizes their costs. The costs and benefits in the FFS payment model are primarily financial, though there are other non-monetary costs and benefits associated with healthcare provision that will also be considered in this analysis. With this assumption of a utility-maximizing provider, then it is possible to make inferences about the behavior that a fee-for-service model would induce based on the incentives experienced within the model. Though this analysis focuses on provider incentives and behaviors as rational utility-maximizing actors, it should be noted that many providers also have altruistic motivations and genuinely want to do what is best for their patients regardless of the other incentives they might experience. Incentives that induce behavior that runs counter to the altruistic tendencies of providers should be explored and mitigated.

INCENTIVES UNDER THE FEE-FOR-SERVICE PAYMENT MODEL

The benefit, or utility, that providers generate for themselves in a fee-for-service model comes through providing higher quantities of care or more profitable services. From the perspective of financial incentives, providers would deliver as much and as profitable of care as possible to each patient to maximize the benefit, or in this case revenue, of each episode of care. Assuming that providers have negotiated prices to the point that the financial benefit of providing more care outweighs the cost of that care, then the provider is incentivized to provide more care regardless of the level of need for that care or the value gained by the patient from the care. Rational choice theory states that rational actors will continue acting, in this case providing treatment, until the benefit of providing one more unit of care is equal to the cost of providing that additional unit of care. In a de facto cost-plus reward system, the cost of care provision is baked into benefit revenue that the provider receives, which ensures that there is never a negative financial incentive to provide additional care. This financial incentive pushes the provider to deliver more and

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higher priced care, potentially to the point of overutilization, thus increasing the cost of care without changing the health outcome. With increased costs and unchanged outcomes, the value of care the patient received decreases. Examples of low-value overutilization that this model may incentivize include extending the length of stay in an inpatient hospital room for observation beyond what is necessary, or a simple sprained ankle leading to an emergency room visit, X-ray, MRI, and referral to a physical therapist.

To get a more complete picture of the rationally acting healthcare provider, there are non-monetary costs and benefits that must be considered in addition to the financial costs and benefits. The non-monetary costs of providing care experience by the healthcare provider include physician time and effort and opportunity cost, which is the cost of not utilizing physician time and effort or other resources in any other benefit-producing ways. Providers also experience transaction costs of providing care associated with billing patients and insurance companies. There may be some costs associated with over-treating a patient, such as exposure to radiation or the negative effects of unnecessary medication, but these costs are mostly borne by patients and mostly influence providers' decision making through the altruistic desire to "do no harm."

When providing additional treatment, the provider also experiences non-monetary benefits. The provider may benefit from decreased legal liability for negligent practices, a concept commonly referred to as practicing "defensive medicine." Providers may experience a "warm glow" effect, which is the intrinsic reward that people experience from doing something "good", increased patient satisfaction scores, and increased likelihood of the provider being recommended to friends and family. Again applying rational choice theory as explained above, the rational provider would continue providing treatment or running additional tests until the total cost (considering both monetary and non-monetary costs) of providing one unit of additional care, known as the marginal cost, is equal to the marginal benefit of providing that additional unit of care.

The equilibrium between the marginal cost and marginal benefit of providing care does not always happen at the quantity of care that would be initially expected. Consider the case of a physician practicing in a hospital system where that physician functions as decision-maker for treatment decisions. If the physician is paid a fixed salary by the hospital or physician group that is not contingent on patient outcomes or costs, then the physician's individual costs and benefits are independent of the financial costs or benefits of the care provided. The physician would also experience limited non-monetary costs from providing additional care because writing an order for nurses or other technicians to administer certain tests or treatments requires little-to-no time from that physician, except for the time required to follow up on the results. The non-monetary benefits of providing additional care, including limited legal liability, warm glow effects, and the potential for increased patient satisfaction would all still be experienced by the physician. Because the physician in the situation experiences fewer costs and retains many of the benefits of providing additional care, there is a strong net benefit pushing the salaried physician to practice defensive medicine and provide additional treatment. This illustrates how the fee-for-service model offers little reward for physicians to provide value-based care and ultimately decreases the value (outcomes over cost) of the care provided. This diminished value may come from either over-utilization of healthcare tests and treatments or the utilization of low-value, meaning either relatively high-cost or relatively low-impact, medical interventions.

Public and private insurers, who function as the payers for the majority of healthcare spending, attempt to mitigate the issue of low-value care in a FFS model through increased control and regulation, utilizing tools such as pre-authorizations and qualified procedures. Because insurers have imperfect (or asymmetric) knowledge about the state of the patient

and of necessary medical treatment, they are unable to adequately police the situation to control the spending. This creates a payment system that incentivizes providers to increase overall healthcare spending through increased quantities of care, with little to counteract that incentive.

FEE-FOR-SERVICE IMPACT ON PREVENTIVE CARE

An additional issue with the fee-for-service model is that it may disincentivize preventive care. If a provider does everything in their power to prevent disease, then the need for future treatment is mitigated, decreasing demand for future healthcare services and, along with it, healthcare providers' future revenue. Additionally, the financial benefit for providers to treat a large-scale, catastrophic health event, such as a heart attack, may outweigh the financial benefit of providing small-scale, preventive care, such as regularly checking blood pressure and consultations on diet and exercise. Viewing healthcare organizations as rational actors who act in their own best interest, they are then incentivized to respond to patients' needs as they are required to instead of actively working to decrease adverse health factors. The types of preventive care missed by the FFS incentive model include both standard preventive measures for adult and pediatric patients along with the long-term care required for chronic disease patients.

The fee-for-service payment model also does not adequately incentivize coordinated care. Coordinated care, that is working collaboratively with other medical professionals, may be neglected because each provider is financially incentivized to duplicate services to maximize their individual revenue, regardless of what other providers have provided in the past (e.g. requiring new x-rays to be taken when referred to a new physician). There are also increased costs associated with coordinated care, including the Health Insurance Portability and Accountability Act (HIPAA) regulations increasing the difficulty of sharing patient information and the investments in technology and health record management that would be necessary to effectively do so. Because care coordination would decrease financial benefits and increase costs experienced by the providers, there is little incentive for providers to invest in these systems.

POSITIVE ASPECTS OF FEE-FOR-SERVICE

While the majority of this argument focuses on the negative aspects of the fee-for-service model, that is not to say that the model is completely without positive outcomes. Because there is an incentive for providers to increase the quantity of care provided, this creates motivation for providers to design innovations that increase the number of patients that can receive treatment and increase the amount of healthcare services available to those patients. These innovations result in improvements in system-wide outcomes such as decreased wait times for medical visits and increased access to care for those who are willing and able to pay. For example, the United States has been found to have shorter wait times for treatments such as elective surgeries than comparably wealthy OECD countries (Siciliani, 2003).

OUTCOMES-BASED PAYMENT MODEL

An outcomes-based payment model (also referred to as value-based care or pay-for-performance) provides a different mechanism for incentivizing high-value care for patients, aimed at maximizing the outcomes and minimizing the cost of care. There are many different methods to apply the concept of linking payment to outcomes within the context of healthcare, but the general goal of optimizing value to patients remains the same. It is a payment model designed to “promote shared accountability for treatment value and drive the use of the right therapy for the right patient at the right time” (Blumenthal et al.,

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2018).

Most healthcare consumers in the US market are familiar with incentive-changing interventions aimed at improving healthcare outcomes from the patient perspective. There are many programs that focus on improving outcomes related to treatment adherence and preventive medicine through methods like eliminating co-pays for annual checkup visits and subsidizing gym memberships. Like those mechanisms, outcomes-based payment attempts to change behavior through altered incentive structures, but instead of targeting patients, it targets the healthcare providers.

EXTERNALITIES

Within the healthcare system, treatment decisions are made mostly by providers, with some input from payers and the patients themselves. The bulk of the decision-making resting on the provider is generally seen as beneficial for patients because providers are the most qualified to make optimal treatment decisions. The issue is that the benefits that the patient experiences through improved health outcomes and the benefit the general society experiences by having a healthier population are not directly experienced by either the provider or the payer. Additionally, the cost of the healthcare provided and the opportunity cost to society of diminished resources to be spent on other forms of consumption are not fully experienced by the provider or the patient, causing providers and patients to see the payer essentially as a source of limitless funds. If a provider is acting rationally and optimizing their private benefits and costs (as described in the previous section), then an issue arises because they are not accounting for the social benefits and costs felt by all stakeholders in the society. That is because these costs and benefits are external to their decision set, and are referred to as externalities.

An externality is a cost or benefit that is not experienced directly by a market participant. This means that the provider is normally unaffected by these external costs and benefits. But if the US healthcare system is to maximize utility for society as a whole and reach a social optimum, these externalities need to be directly accounted for by the provider instead of allowing providers to maximize their own utility. The way to incorporate these factors into the provider's incentive structure is to create a system that internalizes the external costs and benefits by changing the costs and benefits that the provider directly experiences, which is what an outcomes-based payment system does.

An outcomes-based payment model links the provider's payment, which is their financial incentive, to the externalities they would not normally consider, such as patient and societal outcomes. This link can come in many different forms, including bundled payments per episode of care, bonuses or penalties based on outcome metrics, or shared savings and risk programs, all of which internalize the externalities to the provider. Bundled payments internalize costs by allocating a certain amount of money per episode of care (e.g. a heart attack or a hip replacement) and the provider decides how to allocate the funds, pocketing savings and covering losses. Bonuses and penalties are retroactively paid or charged to providers depending on the patient health outcomes and cost of care experienced. Shared savings and risk plans pay or charge the provider a certain amount of money, often a percentage of the savings or losses, depending on the cost billed for an episode of care relative to set benchmark costs. Changing the incentives through any, or multiple, of these methods would change the marginal benefit and marginal cost experienced by the provider at any given point and is expected to decrease the likelihood of prescribing low-value treatments or over-utilizing the healthcare system that is currently observed. This may also result in cost-saving and outcome-maximizing innovations from providers over time to increase the value of care provided. One important factor for this system to effectively incentivize the optimal value of care is that it must reward both better patient

outcomes and cost savings to ensure that one is not allowed to slide in favor of the other, which would net no change in value.

PREVENTIVE-CARE

Preventive care is a group of preemptive tests and treatments aimed at increasing patients' overall health and decreasing the likelihood and severity of disease (Clarke, 1974). The benefits of preventive care for patients and society are high individual and population health levels, which are also positive externalities that providers do not experience directly. Like the rationale for general care, there needs to be a system that internalizes these societal benefits for the providers. To incentivize the provider to appropriately account for the increased health level of the population because of preventive care, there needs to be a payment mechanism that is based on overall population health factors for the group that providers are directly responsible for. This payment mechanism would require a set of quality metrics that link a provider's actions to the outcome policy makers want to see, which is a healthier population with lower prevalence of disease and lower costs.

Incentivizing the avoidance of negative outcomes can be difficult because the absence of an event is the goal. However, avoiding negative outcomes could potentially be measured by the risk-adjusted percentage of the population that experiences heart attacks (or other preventable diseases) or by medical risk factors such as blood pressure, A1C levels, and resting heart rate. An issue especially prevalent in the preventive care model is that so much of the patient's health outcome is dependent on things outside of the physician's control, like compliance with treatment protocol and other patient actions. Because of the nonlinear relationship between physician effort and preventive outcome measures, utilizing preventive care quality metrics to determine provider payment has the potential to decrease provider motivation as compared to the current FFS model. This and other potential issues with the outcomes-based payment model are addressed in the next section.

POTENTIAL ISSUES OF OUTCOMES-BASED PAYMENT

Climate change is the defining issue of our time and responding effectively is of utmost i While the outcomes-based payment model does a lot to align provider incentives with behavior that promotes increased value of care, it also has the potential to produce unintended incentives leading to gaming practices and may be logistically difficult to fully implement. While these issues are not severe enough to negate the positive impacts of this payment model, they should be discussed to adequately control for and mitigate any possible negative outcomes.

GAMING PRACTICES

Any health quality measure that policy makers develop is likely to be imperfect and not fully comprehensive, especially during the early stages of implementation. Without careful design and consideration, moving toward an outcomes-based payment model may incentivize providers to game the system to produce the metrics that are expected of them without truly improving the value of care as expected. This gamification may come in the form of cost-reducing behaviors that lower quality of care with is or "skimming" behavior where providers skim the top of the patient pool for patients that are most likely to experience better health outcomes.

With an increased focus on cost-effective treatment to increase the value of care, there is an incentive for providers to keep costs as low as possible per patient episode of care. This could lead to cost-reducing strategies that either put the patient at greater risk

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or that decrease the quality of their service they receive. This can potentially look like discharging patients earlier than would normally be advised or utilizing lower-quality surgical products that may need to be replaced later. The risks of gaming costs can be partially mitigated by utilizing value metrics that weigh outcomes and quality of care against price. Additionally, metrics that evaluate an entire episode of care, including any complications or readmissions associated with that patient's initial treatment, would decrease the incentive for this type of gaming behavior.

By rewarding high value care, providers are also incentivized to favor, or even exclusively treat, less complicated cases that have the highest probability of attaining high value metrics. This type of skimming would leave high-need patients, such as those with comorbidities, unusual cases, or other complications without recourse for treatment. Additionally, this has the potential to lead to inequitable treatment because lower-income patients and those experiencing other negative social determinants of health (Braveman & Gottlieb, 2014) tend to have poorer health outcomes. Many of the social determinants of health are associated with patient behaviors that are outside of the physician's control, such as lower treatment compliance rates due to the cost of compliance (including monetary cost for medications, time off work for follow-up appointments, and access to healthful foods and exercise) being relatively higher for those groups. Because these behaviors are outside of the provider's control, they may simply avoid patients who might decrease their overall quality metrics. This type of preferential treatment behavior can be mitigated in part by including adjustments to expected outcome metrics, controlling for things like initial health status and social determinants of health.

DATA, MEASUREMENT, AND MOTIVATION

This payment system requires a large amount of high-quality data about costs and patient outcomes and metrics that accurately reflect the value of care. To address this need, policy makers will need to address many potential issues, including:

1. The newly created measures need to be easily understandable while still incorporating both patient outcomes and costs.
2. Some health outcomes are not evidenced until years down the line, so it is not practical to fully tie all outcomes to the payment system.
3. People normally choose metrics that are easier to measure because true outcomes are more difficult to track, especially when it entails accounting for multiple factors affecting patient risk.
4. There is a question of whether payers or policy makers should have the power to determine expected outcomes.
5. How will the metrics included in the payment system adjust overtime to incorporate changing costs and outcomes based on innovations and environmental factors?
6. Collecting and reporting this level of information for all patients will be a substantial drain on providers' time and resources
7. Many outcomes rely on multiple factors that are outside of the physician's scope of control, potentially making outcome metrics a poor measure of the physician's efforts and quality input toward the best possible outcome for the patient.

The list provided above is not intended to be exhaustive, but a general overview of some of the major considerations that must be made while creating a data and measurement

system that adequately incentivizes value-driven provider behavior. Additionally, utilizing these metrics, the outcomes-based payment model provides an extrinsic motivation system focused on providing rewards and punishments to providers as incentives to guide their behavior. Providing extrinsic motivation in this way may inadvertently crowd out the intrinsic motivation that healthcare providers already have to provide the best care for their patients. This may lead to decreased internal drive for physicians to look out for their patients' best interest and decrease provider job satisfaction. This would be especially detrimental in the US healthcare system where a physician shortage is predicted to reach a deficit of 139,000 by 2030 (Zhang et al, 2020), so lower job satisfaction rates could further exacerbate this problem.

These potential issues should be analyzed and accounted for, but do not undermine the value of the outcomes-based payment model. To help mitigate these and other potential pitfalls associated with the outcomes-based payment models, a careful analysis and application of behavioral economic theory can increase the probability of successfully influencing providers' incentives to fully account for social externalities and increase the value of care provided.

BEHAVIORAL ECONOMICS

The theories discussed in the previous two sections focus on incentives and rational decision making as key explanations for provider behavior. This approach has its limitations as a lot of human behavior is not strictly rational. The following section explores some of these predictably irrational (Ariely, 2009) tendencies in human behavior and explain how they can be either exploited or mitigated to maximize the success of the outcomes-based payment model in the US healthcare system (Audet & Zezza, 2015).

LOSS AVERSION

Loss aversion is a phenomenon where people are more likely to change their behavior to avoid loss than they are to change their behavior to make a gain of the same or similar amount. One would expect a rational decision maker to respond similarly to an incentive structure that pays them \$5 for desired behavior and an incentive that takes away \$5 for undesired behavior because the reward and punishment are of the same magnitude, but because people are loss averse, this has not been shown to be the case. Incorporating this phenomenon into the outcomes-based payment model, providers will have a stronger response to potential losses in income than potential gains of the same size. This behavior can be utilized by pre-paying providers for expected treatment costs and then requiring them to pay back funds (via penalty or other retroactive mechanisms) if they do not meet certain cost or outcome metrics. A less forceful option that utilizes the same behavioral response would be to promise a certain level of payment for all billing associated with a certain episode of care (such as the fee schedules that are currently published by CMS) and then subtract a certain percentage of that amount before paying the provider if outcome or cost metrics are below a certain threshold. Healthcare experts have analyzed recent CMS programs that utilize the potential for bonuses and losses simultaneously, referred to as two-sided risk models, which have been seen as stronger than programs that only include upside bonuses (Emanuel et al., 2020) and have been shown to outperform FFS models on multiple quality and efficiency metrics (Cohen et al., 2022).

REFERENCE DEPENDENCE

Reference dependence refers to the concept that a person's view of the world and their behavior is highly dependent on reference points in their lives. For example, a rational decision maker would be expected to value their salary based on its utility, or ability to

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purchase desired and necessary goods and services. What this theory explains is that if someone had a \$50,000 annual salary, they would likely be more content with their salary if all their friends made less than \$50,000 than if all their friends earned more than them, even though their income is not changing. This behavioral theory can be applied to healthcare payment models through the publication of outcome measures that are necessary for the outcomes-based payment system. If providers are being paid based on patient outcomes, then there would need to be a standard set of quality outcome metrics that would measure the relative success for healthcare providers. Reference dependence states that by simply publishing these results publicly, without any additional incentives attached to the publication, providers would be expected to naturally change their behavior to achieve higher outcomes. These published results can also be seen as “nudges” (Thaler, 2008), or signals that would nudge providers toward the desired behavior of improved outcomes and lower costs simply because the information surrounding their care is being collected and shared with them. Because this phenomenon does not rely on monetary incentives, it can be seen as a cost-efficient addition to many outcomes-based interventions.

The application of these theories to healthcare was recently demonstrated through a case study in Sweden. The country has historically had a good healthcare outcome tracking method and recently released a quality index for all cardiac hospitals in the country. After the cardiac quality index information was published, the rate of improvement across the indicators rose dramatically for all providers. The greatest improvements, over 40 percent, were experienced by the providers who were lowest performing before outcome publication (Clawson, 2021). This outcome was achieved without any monetary incentives being tied to the improvement of cardiac outcomes. A similar behavioral change was seen at Martini-Klinik, a prostate cancer center in Germany. When providers’ outcome metrics were published, providers improved their performance. This behavioral response is exemplified by the popular adage “you do what you measure.” By publishing meaningful indicators for both health quality outcomes and costs, healthcare providers may change their behavior and increase the value of care that they provide to their patients.

FRAMING EFFECT

The framing effect is a behavioral theory that asserts that regardless of the absolute truth of something, the way that it is framed greatly impacts perception. Applying the theory to the healthcare system, it is possible to provide physicians with lists of testing and treatment options along with metrics displaying the cost and effectiveness of each option. This would frame treatment decisions directly against the alternatives and may lead healthcare providers to make higher value decisions for their patients. Another way this theory can be applied is during the payment process. When bonuses or penalties are included in a provider’s normal salary, they do not have the opportunity to view these incentives as a meaningful change to income. By decoupling the bonus or penalty from their standard salary and processing those payments separately, the framing of the bonus or penalty is changed and will likely result in a greater change in behavior.

IMMEDIACY EFFECT

The immediacy effect describes the phenomenon that humans tend to put greater mental weight on punishments or rewards when they closely follow the behavior that caused them. This happens because the timing of rewards and punishments allows participants to feel a more direct correlation between behavior and the punishment or reward. In the healthcare system, it can be difficult to provide immediate rewards or punishments for providers to correlate with their behaviors. Some of this difficulty is inherent in the

healthcare system because many patient health outcomes are slow to develop and not apparent immediately, especially for preventive care. Another factor making it difficult to immediately tie patient health outcomes to physician behavior are electronic health record systems. These systems would likely be the main source of information for meaningful health outcome metrics and are currently slow to compile and report outcomes. For outcomes-based payment models to be as effective as possible, the payers implementing the model would need to increase the immediacy of rewards and punishments as much as possible.

THE ASYMMETRIC INFORMATION PROBLEM

Within the US healthcare system, there exists asymmetric information among the three primary stakeholders: payers, patients, and providers. Asymmetric information is a situation where one participant in a transaction has access to more information than the other, which leads to inefficiency in the market. In the United States healthcare system, patients and payers do not always know the expected outcomes, cost structure of providers, or even the expected price for treatment. This theory suggests that if the information available to all parties was leveled, then the asymmetry problem would be solved which would result in a more efficient market.

Because patients are currently unaware of the quality of health outcomes they can expect from the care they will receive, patients try to use other signals to estimate the expected quality of their healthcare outcomes. These other signals include looking for information like the medical school the physician attended, the brand name of the hospital, or how nice the building appears. While these signal-driven estimations are better than no information, they certainly are not perfect indicators of expected level of outcomes which would be necessary for this payment system to function fully. The Center for Medicare and Medicaid Services (CMS) is currently working to overcome this problem with their five-star rating system of providers (CMS, 2023), but the tool still has room for improvement in terms of population awareness and patient useability. Demand for healthcare services tends to vary little with changes in the price of care (Ringel et al., 2002). Insured patients may care less about the cost of covered treatment because the price differences among competitors will likely be minimal and mostly experienced by the insurers with only a portion of the costs experienced by the patients directly through copayments. Innovations to increase price transparency of care could lead to some benefit with patients making more informed, value-driven decisions about their care in non-emergency situations.

One case study from Australia demonstrates the improvements in health outcomes that can take place when steps are taken to decrease the information asymmetry. The country developed a system to track and analyze patient outcomes for total hip replacement procedures that happen throughout the country. Utilizing the country-wide data, researchers were able to detect a metal-on-metal hip replacement product that was negatively impacting patients, eventually leading to its removal. The Food and Drug Administration (FDA) in the United States took an additional seven months to make the same finding about this low-value and potentially dangerous health product (Clawson, 2021). Increased access to population-level health information is just one example of interventions that can address information asymmetry problems and increase the quality of health outcomes and decrease unnecessary and inefficient costs.

Some free-market advocates argue that by only fixing the problems of information asymmetry uncertainty in the healthcare system, then the value problem will fix itself through market self-regulation. This solution would rely mostly on gathering and publishing relevant cost and outcome information in a time-appropriate manner and allowing patients, payers, and providers to respond accordingly and make educated

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choices to optimize their own decision mix. One issue with this proposal is that it is extremely difficult to completely eliminate the information asymmetry problem because even with the best information available, the outcome of healthcare is never truly known prior to it being experienced. With many instances of care, patients only experience it once, such as an appendix removal, which does not allow a patient to incorporate their personal experience the next time the decision needs to be made. Because of these limitations, it is evident that addressing information asymmetry and uncertainty in the system will improve the effectiveness of the outcomes-based payment model, but it is not enough to fully address the problem on its own.

IMPLEMENTING OUTCOMES-BASED PAYMENT

From the many outcomes-based payment programs that have been tested, there have been varying levels of success in increasing the value of healthcare provided. There are a few key takeaways from these early programs that can help ensure future implementation of outcomes-based payment is successful. One key finding is that broader programs tend to be more successful than those with a narrow focus. With too small of a focus (such as improving a singular outcome), everything else loses importance in pursuit of that one indicator, a sort of gaming effect. Broader-based indicator programs that are also tied to budgets, potentially via shared two-sided risk and reward programs, have had higher success rates by limiting gaming ability and increasing externality internalization for providers (Vlaanderen, 2018).

For large scale implementation to be successful, there needs to be sufficient payers changing a large enough portion of their payment systems to an outcomes-based plan to reach a tipping point. If this critical mass is not achieved, the wide-spread behavior changes that this policy aims to induce will not occur because the implementation cost (in terms of time, effort, significant data system changes, etc.) for healthcare systems to make the necessary changes would be greater than the potential benefits from avoiding penalties and inducing shared savings bonuses. To reach the critical mass necessary to make the initial investment justifiable for healthcare providers, Congress could enact regulations to require both public and private insurers to implement outcomes-based payment models. Even without such legislation, because CMS is such a large payer in the US system, accounting for around 40 percent of total healthcare spending in the country, they have the ability to effect large, systemic changes through changes to their policies. Studies have also found that ACA programs show positive spillover effects where the value of care increases even for non-target diseases and non-CMS patients without direct incentives to change these behaviors (Emanuel et al., 2020). The timeframe of the proposed payment changes must also be sufficiently long and gains sufficiently large to make up for the large initial investment that this policy would require. To best balance the large cost of creating meaningful metrics and the systems to track them against the benefit of improved value of care to patients, experts argue that a mixed payment model utilizing multiple outcome types and incentive structure have the highest probability of success (Conrad, 2015).

Throughout the majority of this analysis, providers are lumped into a single, homogenous group. In reality, the term healthcare providers includes a wide range of organizations whose business models align with outcomes-based payments to varying degrees. When assessing the potential for outcomes-based payment models in the US, McKinsey & Company (Latkovic, 2013) broke healthcare providers into three groups: 1) component providers who provide transactional services (e.g. pharmacy, medical device manufacturers), 2) healers who provide comprehensive treatment for a single episode of care (e.g. cardiothoracic surgeons, orthopedic surgeons), and 3) partners who provide long-term, population-based care (e.g. nursing homes, primary care physicians). Because the nature of the interaction between each of these provider types with patients and payers is quite

different, each provider type may warrant a distinct payment model design. The McKinsey researchers suggested that single episode healers and long term care providers move toward outcomes-based payment through bundling, shared risk and savings, and bonus/fee systems to better align provider incentives with patient and societal needs. Because component providers deliver more transactional services, such as one-off interactions with patients, it would make more sense to continue to utilize the fee-for-service model for the goods and services they provide.

CONCLUSION

The healthcare system in the United States spends significantly more than any other developed nation yet experiences worse health outcomes. A contributor to this problem is the current fee-for-service payment model. The FFS model incentivizes healthcare providers to supply higher quantities of care without regard for the quality of health outcomes or the cost of care associated with treatment decisions. An outcomes-based payment model applied to the healthcare system incorporates outcome and cost metrics into the payment that providers receive for the care they provide. This altered payment structure provides a mechanism for healthcare providers to internalize patient and societal benefits that are currently external to their decision mix. While this payment model improves the incentive structure for providers, it must be carefully implemented to account for the difficulty of collecting and reporting the necessary data and to avoid issues with gamification and the potential to decrease the intrinsic motivation of providers.

Behavioral economic theory provides insights into the predictably irrational behavior of humans as we make decisions. Many of these theories, including loss aversion, reference dependence, framing effects, and the immediacy effect can be directly applied to outcomes-based payment models to increase the effectiveness of program design. Ongoing research has shown that when implementing outcomes-based payment, broad scope programs outperform narrow scope solutions, the large implementation cost to providers needs to be weighed against their potential benefit, and different provider types may warrant unique payment models depending on the nature of their interaction with patients and payers.

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