Reference Pricing for Healthcare Services

Extended Abstract

The cost of a given medical procedure varies widely not just across the nation, but also across medical providers within the same geographic area (Newman et al., 2016). For example, the maximum price charged by a provider for a knee replacement in Atlanta, GA is over 6 times that charged by the lowest-priced provider. For an MRI in Columbus, OH, the ratio is 6.65 (Cooper et al., 2015). The price charged for a procedure does not generally reflect the quality of the care provided (Newhouse et al., 2013). Rather, price variation results from variation in the providers’ market power in their negotiations with insurers, the extent of provider competition within a geographic area, the type of facility offering the procedure, the lack of pricing transparency, and who is footing the bill – Medicare, Medicaid, private insurer or patient (Cooper et al., 2015; Rosenthal, 2013).

The current payment system does little to incentivize patients to be price-conscious in their selection of a provider. Usually, patients pay out-of-pocket either a fixed co-payment or a co-insurance, that is, a fraction of the billed charges, subject to a maximum yearly out-of-pocket. In the case of a fixed co-payment, patients pay the same amount regardless of what the provider actually charges the insurer. In the case of a co-insurance, for an expensive procedure the co-insurance may exceed the yearly out-of-pocket. The patient is then also unaffected by what the insurer is charged. When the patient pays a co-insurance and the procedure price is relatively low, the patient pays a variable amount proportional to the price charged, but the amount tends to be small and so less consequential for patients. Therefore, patients have limited incentives to select a less expensive provider. As a result, providers have little motivation to control the price they charge, and every incentive to raise prices.

To better align incentives and control rising healthcare costs, a different payment system called reference pricing (RP) has been proposed, involving cost-sharing with patients. Price variations that are not linked to quality of service or patient health outcomes indicate that insurers may be able to reduce spending by incentivizing patients to use lower-priced providers. Reference pricing has long been used for pharmacy benefits. The California Public Employees’ Retirement System (CalPERS) has recently applied it to inpatient knee and hip replacements (White and Eguchi, 2015). For a joint replacement surgery, the price charged is usually high enough so that the patient’s cost share under co-insurance would exceed the maximum yearly out-of-pocket. Hence, patients are subject to a fixed payment (their maximum yearly out-of-pocket) in the current payment system.
The idea of reference pricing is to set a “reference price” as the upper limit of charges to be reimbursed by the insurer. If a patient selects a provider charging the reference price or less (i.e., a “value-based” provider), she pays a co-payment or co-insurance just like under the current payment system. However, if the patient selects a provider charging more than the reference price (i.e., a “non-value-based” provider), she has to pay the full portion of the charge above the reference price (not applicable towards a yearly maximum out-of-pocket), in addition to the co-payment or co-insurance from the portion below the reference price.

Reference pricing can be applied only to shoppable medical services— not emergency care. The patient must be able to shop around and compare providers based on their prices and other attributes before making a selection. Such comparison requires full price transparency which is becoming more common (Emanuel et al., 2012), and was facilitated by the insurer in the CalPERS experiment (Robinson and Brown, 2013).

While reference pricing has some clear advantages in the way it aligns incentives, it may also have some unintended consequences. Proponents of this payment system argue that it provides patients with incentives to make a price-conscious provider selection. Moreover, reference pricing may give the most expensive providers incentives to reduce their prices if they want to maintain their market share with price-sensitive patients (Robinson and McPherson, 2012). Hence, in the long-run, reference pricing could help reduce the current trend of unwarranted rising prices. However, critics argue that reference pricing could result in forcing patients to bear a larger share of the cost, especially if the reference price is set low, reducing patient welfare. In addition, the quality of care could decrease under reference pricing as a way for providers to lower their own costs and maintain a sufficient profit margin when their prices are lowered (Reinhardt, 2013).

Our goal is to analyze the reference pricing payment scheme and its effects on all agents involved— patients, competing medical providers, and insurer. We propose to answer the following research questions: (1) Does reference pricing reduce prices set by competing medical providers? (2) Are each of the stakeholders (patients, medical providers, insurer) and the entire system better or worse off under reference pricing relative to either a system where the patient pays a fixed amount (e.g., co-payment) or a variable amount (e.g., co-insurance)? (3) How should the insurer set the reference price?

We consider an insurer with a network including multiple differentiated competing providers who offer a given shoppable medical service. The insurer serves a population of heterogeneous patients seeking to obtain this service. The payment system may impose patients either a fixed co-payment, a variable co-insurance, or a reference pricing system. Under a given payment system, providers set their prices, and patients then select a provider based on both monetary and non-monetary
factors according to a discrete choice model. In a fixed payment system, the patient is financially responsible for a fixed amount regardless of the provider selected. In a variable payment system, the patient pays a fraction of the price charged. Under reference pricing, the price selected by a provider determines whether it is value-based or not. The patient pays a fixed co-payment and, if she selects a non-value-based provider, the difference between the price charged and the reference price.

This paper introduces a new model of reference pricing payment system that considers competition among differentiated medical providers. Our model incorporates heterogeneous patients influenced by monetary and non-monetary motives. We derive the patients’ optimal provider selection decisions and the providers’ optimal pricing strategies under a fixed payment system, a variable payment system, and a reference pricing payment system. Consistent with current observation, we obtain that the traditional fixed payment system fails to create incentives for patients to shop for the better-priced providers and hence fails to curb prices. We further compare patients’ out-of-pocket cost as well as the utility of patients, providers, insurer, and the entire system across the different payment schemes. We find that with a weak outside option, patients and the insurer are in general better off under reference pricing than under a variable or a fixed payment, while the providers favor a variable or a fixed payment system over reference pricing. The reverse holds true as the outside option becomes more appealing.

References

Cooper, Z., S. Craig, M. Gaynor, J. Van Reenen. 2015. The price ain’t right? Hospital prices and health spending on the privately insured. NBER Working paper 21815.


