Editorial

Reference pricing may have limited use but is not a blanket solution for laboratory testing

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Rising healthcare costs are a continuing concern. Insurers and employers have responded with several different strategies to contain costs. One strategy has been to shift costs to patients through higher deductibles or copayments. While these strategies reduce costs, they can also influence a patient's decision whether to obtain care at all. Reference pricing is an alternative strategy that is designed to influence where a patient seeks care rather than whether they seek care.

In reference pricing, the insurer sets a target price based on the distribution of prices in the market. Patients can purchase the good or service from any supplier; however, the patient is liable for the difference between the reference price and supplier price. There is no cost to the patient if they select a supplier whose price is below the reference price. Prices vary widely and sometimes bear little relation to underlying costs. Reference pricing creates an incentive for patients to select suppliers whose prices are below the reference price.

Reference pricing rests on at least two assumptions. First, it assumes that quality is not related to price or that consumers can easily evaluate tradeoffs between quality and price. Second, it assumes that consumers have multiple alternatives available from which to purchase the good or service and that consumers have access to price information.

Reference pricing has been adopted by over a half dozen countries (e.g., Germany, New Zealand, the Netherlands) but it has not been implemented in the United States (1). These countries implemented reference pricing policies for pharmaceuticals and, in general, such policies led to decreases in drug prices and decreases in costs to patients and payers (1,2). Although reference pricing has been successfully applied to pharmaceuticals, it is not known whether reference pricing policies would be effective in other areas such as laboratory testing.

In a recent study, Robinson *et al*. investigated the impact of reference pricing on purchase decisions for medical laboratory tests (3). The study compared patterns of laboratory test selection in two cohorts that differed with respect to insurance coverage for laboratory testing. The intervention cohort was a large self-insured grocery chain (N=30,145), and the control cohort was a large insurance plan (N=181,831). Reference pricing was implemented in the intervention cohort while the control cohort used a traditional deductible and copay scheme without reference pricing. Patients in the intervention cohort were given price information for laboratory tests performed at each laboratory and a reference price was provided for each test. The reference price was set at the 60th percentile of the price distribution for each test. Claims data for both cohorts were collected from 2010 to 2013. Reference pricing was implemented in the intervention cohort in March 2011.

The study was limited to tests where patients were able to exercise choice. Inpatient testing, tests related to emergency or urgent care, and tests related to active treatment of serious medical conditions were excluded. Laboratory tests accounted for 5.12% of the medical care costs in the intervention group. Tests were only included if they were available through both insurance plans. The included tests (N=286) accounted for 3.04% of the total medical care costs (59% of total lab testing expenses).

The study found that reference pricing was associated with a significant decrease in testing costs while the number of tests per patient remained constant. Prior to the

intervention, 46% of tests were selected from laboratories whose price exceeded the reference price. This declined to 16% 3 years after the intervention. Patients in the intervention group were 25.2% less likely to select a test from a higher-priced laboratory compared to the control group. The authors identified ten tests that had the highest annual cost. The prices for these ten tests varied, on average, by a factor of ten. For example, the price of a complete metabolic profile varied from \$5.75 (5th percentile) to \$126.44 (95th percentile) at different laboratories.

These findings suggest that reference pricing changed patient purchase behavior by directing them toward lower-priced alternatives. Further, reference pricing appeared to influence where to obtain care rather than whether to obtain care. From the payer perspective, reference-pricing policies can reduce the cost of laboratory testing just as they have done when applied to pharmaceuticals.

These results are not surprising; however, laboratory tests differ from pharmaceuticals in some important ways that may make them inappropriate targets for reference pricing. Reference pricing policies rest on the assumption that price variation is not associated with differences in the quality of the product or service. Thus, consumers can safely make choices based on price alone. Pharmaceutical products are highly regulated and all pharmaceuticals must be FDA approved. Generics must be proven to be equivalent to branded pharmaceuticals. Thus, for pharmaceuticals, the assumption of constant quality is reasonably satisfied.

Laboratory testing is a service based on a complex process that is commonly divided into pre-analytical, analytical, and post-analytical phases. The actual test is only one step of the overall process and any step of the process can affect quality (4). FDA approval of the testing step is not sufficient to ensure quality. The process requires trained personnel, quality assurance processes, verification, and documentation that are regulated under the Clinical Laboratory Improvement Amendments (CLIA). This oversight provides reasonable assurance of the quality of analytical test results generated by different laboratories. However, there can be substantial variation in the quality of service between laboratories. This includes factors such as turn-around times, guidance for health care providers on test selection and interpretation, and access to expertise provided by pathologists and clinical laboratory scientists. Differences in the quality of laboratory services are unlikely to be evident to patients, but they are important to clinical healthcare providers, and they impact downstream costs and outcomes.

Laboratory testing differs from pharmaceutical testing in other ways. The patient must be present to provide a sample for laboratory testing, but pharmacy services can be performed remotely. In principle, this would allow a customer to obtain prescriptions from several different sources with only minor inconvenience. In contrast, customers provide blood samples at phlebotomy centers that are usually associated with a particular laboratory. A customer would have to travel to several different sites to obtain the best price on several different tests. In this case, reference pricing would impose a significant inconvenience and could influence the decision to obtain care.

Reference pricing also assumes that customers can select among several alternatives. The fact that sample collection facilities are tied to laboratories suggests that markets for testing are local. A hospital laboratory operating in a small town would face little competition and would be relatively free to raise prices. In contrast, pharmacy services can be performed by mail and are subject to greater competition. Thus, reference prices may not be applicable to lab testing because customers do not have alternatives in some areas.

The Robinson study shows that reference pricing has the potential to reduce costs associated with laboratory testing. As we point out, laboratory testing does not fulfill some of the assumptions that underlie reference pricing. The quality of the service to healthcare providers and patient access to testing by different laboratories can vary considerably. Reference pricing might be helpful if it could be selectively applied to a subset of routine tests with high variation in price in areas where consumers have considerable choice in laboratories. The Robinson study showed considerable price variation in relatively routine tests (e.g., complete metabolic profile, hepatic function test, thyroid-stimulating hormone) that would be likely to meet these criteria. The Robinson study found that the prices for these simple tests often varied by a factor of ten. These results are similar to the findings of a survey conducted in California which found that published prices varied by up to a factor of 1,000 (lipid panel) and that the coefficient of variation for the price of the most common tests was 200% (5). These routine tests are ordered in high-volume and represent a meaningful portion of test expenditures. Although reference pricing may have some potential, laboratory costs are a small portion of total healthcare costs, and reference pricing is probably only applicable to a subset of tests in locations served by multiple laboratories. Significant questions remain about the applicability of reference pricing to laboratory testing and whether other approaches might be

more effective or more easily implemented.

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Footnote

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Conflicts of Interest: PE Jensen is Chairman of the Board of ARUP Laboratories, a national reference laboratory that performs clinical laboratory testing. RL Schmidt is a medical director at ARUP Laboratories.

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