What Does the RAND Health Insurance Experiment Tell Us About the Impact of Patient Cost Sharing on Health Outcomes?

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As healthcare spending has risen, patients have been required to pay more when they seek care. This trend is exemplified by increases in deductibles, copayments, and coinsurance rates, as well as by increased enrollment in high-deductible health plans such as health reimbursement arrangements or health savings accounts.

It is widely accepted, based on considerable evidence accumulated over decades of study, that higher cost sharing will lead to reduced healthcare expenditures. The gold standard of evidence supporting this conclusion is the RAND Health Insurance Experiment (HIE), which was a randomized trial of higher cost sharing conducted in the 1970s. Estimates from the HIE suggest that when patients were required to pay for 95% of their care (up to an out-of-pocket maximum that was based on their income) they reduced spending by about 30%.[1] Less dramatic levels of cost sharing suggested that a 10% increase in cost sharing would result in about a 2% reduction in spending. Numerous resulting academic publications and research reports based on the HIE have examined the impact of cost sharing on a wide range of spending categories and subpopulations.[2]

The impact of cost sharing on health status has been much more controversial. The HIE found that, on average, there were minimal or no adverse health consequences associated with higher cost sharing. The estimates were not only statistically insignificant, but the associated confidence intervals indicated that any true effect was clinically small.

Yet both the HIE and considerable current work report that greater cost sharing is associated with reductions in use of clinically important services. For example, recent research has documented that relatively modest increases in cost sharing reduce utilization of important medications for managing chronic disease.[3-9] Goldman and colleagues reported that a doubling of copayments reduced use of antidiabetes medications by patients with diabetes by 23% and reduced use of antihypertension medications by patients with hypertension by 10%.[5] Huskamp and colleagues reported that when an employer increased cost-sharing requirements by about $10 to $20 per prescription (depending on the exact medication), 21% of patients stopped taking their medication for high cholesterol (compared with 11% in a control group).[6] Hsu et al reported that higher cost sharing for prescription drugs resulted in worse physiologic outcomes (eg, blood pressure), more visits to the emergency department, and even greater mortality.[10] Similarly, Chandra et al reported that high cost sharing can lead to worse compliance with important healthcare services and, in turn, result in more hospital admissions and other poor health outcomes.[11] Reducing copayment rates seems to have the opposite effect. Evidence suggests that reduction in copayments of about $10 per prescription increased patient adherence to treatment regimens for chronic disease.[12] Recent reviews of the literature confirmed these conclusions.[4,13]

Similarly, recent research suggests that higher cost sharing will reduce use of preventive or screening services that are typically used to measure quality. For example, Trivedi et al documented reduced use of mammography after increases in copayment rates.[14] How can these results be reconciled with the overall findings of the HIE?

The reconciliation begins with a return to the results of the HIE. The RAND HIE was consistent with other research in that it found that patients reduced utilization of services deemed clinically appropriate by the same amount as they reduced the use of services deemed clinically inappropriate.[15] The lack of a relationship between cost sharing and health outcomes in the HIE was not due to patients choosing only to forego services with limited clinical value.

Instead RAND researchers interpreted the failure to find an effect of cost sharing on health status as reflecting a beneficial reduction in use of harmful medical services that offset the negative consequences associated with a reduced use of beneficial services. Specifically, some of the services foregone because of higher cost sharing might have led to worse health outcomes, suggesting a benefit from charging patients

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more. This is certainly consistent with evidence suggesting that heath outcomes are not better in areas with greater healthcare spending.[16]

We believe there are several reasons why the RAND findings should not be used to justify higher cost sharing across the board. First, it is likely, based on the results of the HIE, that the negative effects of higher cost sharing are most significant for treating chronic disease and certain preventive services. Fewer effective treatments for chronic disease were available in the 1970s; thus, the adverse consequences of cost sharing may be greater now than they were in the past. Second, over time diseases that were once untreatable or considered acute illnesses have become chronic in nature as technology has advanced, exacerbating the negative consequences associated with higher cost sharing.

Concern should be greatest for low-income individuals. The HIE itself found a few adverse health effects for low-income individuals with chronic disease. This is consistent with more recent evidence finding greater price sensitivity for important maintenance medications among low-income individuals with chronic disease.[17] Whether the likely greater adverse effects are offset by greater reductions in iatrogenic effects for the general population or for low-income individuals is unknown, although this possibility cannot be dismissed out of hand because more powerful interventions typically have more adverse consequences if misapplied. Nevertheless, we believe it is reasonable to expect that higher cost sharing may lead to worse health and may increase health disparities.

Perhaps the concerns about the adverse consequences of greater cost sharing can be mitigated by better patient education, but evidence about the impact of education on the sensitivity of consumers to the price of high-value services leaves reasons for concern. Specifically, education interventions may improve compliance with important services, but may not reduce the price sensitivity of patients to higher cost sharing. One study of copayment reductions demonstrated that patients responded to lower copayment rates. Despite the study's being conducted in a setting that had a sophisticated care management intervention in which patients and physicians were contacted about their care, the results suggested the responsiveness to cost sharing was similar to that in other studies.[12]

Most importantly, we believe it is possible to reduce the adverse consequences of cost sharing by adopting the principles of value-based insurance design (VBID), which argues that copayments or cost sharing more generally should be kept low for high-value healthcare services.[18-20] As clinical research advances, more sophisticated cost-sharing strategies such as VBID are possible. These approaches provide more generous coverage for high-value services, in some cases only when these services are used by patients for whom they provide high value. Although not possible for all services in all clinical areas, VBID is possible in many important areas, as illustrated by disease management programs and quality improvement initiatives (including pay for performance) that have identified high-value services for appropriate patients.

Several employers, insurers, and benefit consulting firms have begun to adopt VBID-style benefit packages. For example, Pitney Bowes reduced cost-sharing requirements for important chronic disease medications and reported very favorable results. The University of Michigan designed a benefit package for employees and dependents with diabetes that focused on minimizing financial barriers to access for important services. Insurers such as Aetna have developed a range of initiatives related to VBID, with ActiveHealth Ma=nagement (a subsidiary of Aetna) using its sophisticated care management information system as a platform to support VBID. Hewitt Associates, a large employee benefit consulting firm, has begun consulting with clients for such programs. These are only a few examples, but they demonstrate the feasibility of such a clinically sensitive approach to cost sharing.

VBID programs are just in their infancy and are no panacea for all of the challenges facing the healthcare system. Yet to the extent that consumerism (and more specifically cost sharing) is part of the solution, VBID can help mitigate adverse effects while preserving the advantages of cost sharing. Moreover, VBID programs can support quality improvement initiatives by removing barriers to the services being promoted.

Given the rise in healthcare spending, greater patient responsibility for the costs of care will undoubtedly be an important feature of the healthcare system in the future. But the literature suggests that cost sharing has both beneficial and detrimental effects. Proponents of cost sharing focus on situations in which there is overconsumption of care. In these cases, cost sharing can encourage efficiency in the system and perhaps reduce adverse effects, but of course when care is appropriate, cost sharing can lead to worse outcomes. Evidence suggests that in many situations cost sharing reduces the likelihood that patients will use appropriate services. This could lead to additional hospitalization, emergency department visits, and even death. More sophisticated cost-sharing programs, supported by rigorous clinical and health services research, are needed to balance our need to control spending with our desire to get the most from our healthcare system.

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Funding Source: None reported.

Author Disclosure: Dr Chernew reports having served as a consultant to Pfizer, Inc, ActiveHealth Management, Hewitt Associates, Abbott Laboratories, and Covidien. Dr Newhouse is on the board of directors for Aetna and owns equity in that company.

Authorship Information: Concept and design (MEC, JPN); drafting of the manuscript (MEC); critical revision of the manuscript for important intellectual content (MEC, JPN).

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