

# Consumer-Directed Health Plans And The RAND Health Insurance Experiment

Higher cost sharing, the subject of the RAND experiment, could strengthen the newer tools of managed care in controlling costs.

by **Joseph P. Newhouse**

**PROLOGUE:** The players may have changed over the years, but the game remains the same: how best to stem the persistent tide of rising health care costs. Whatever fleeting victories were achieved during the 1990s, through bread-and-butter managed care mechanisms, were blunted in the new decade by a massive backlash driven by consumer and provider discontent. Such resentment drove a wave of policy making that essentially defanged some of the most effective weapons in the managed care cost-cutting arsenal.

It came as little surprise to most when health care costs rebounded to account for a projected 15.2 percent of U.S. gross domestic product in 2004, driven in part by health insurance prices that have increased roughly 12.5 percent per year for the past three years. A measure of the desperation of policymakers, health plans, and employers in attempting to beat back this familiar fiscal behemoth is a willingness to revisit some of the most maligned elements of managed care utilization management. Decisionmakers have also increasingly sought to partner with employees to place greater financial responsibility for health care on workers, in a new health benefit design trend termed “consumer-driven health care.”

In this paper economist Joe Newhouse draws parallels between today’s consumer-directed health plans and the RAND Health Insurance Experiment (HIE) of the 1970s and 1980s. He points out that although HIE findings generally supported the utility of initial cost sharing (such as through high deductibles) in decreasing health care use, application of these principles to reducing costs per episode was less successful—managed care being more effective on that terrain. Newhouse concludes that optimal results in controlling overall costs could be achieved by cost sharing and modern managed care mechanisms working in tandem.

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**ABSTRACT:** Today's consumer-directed health plans, with their high deductibles, bear a strong resemblance to the high-deductible plan of the RAND Health Insurance Experiment (HIE), although they come into a post-managed care world. The high deductibles and the tools of managed care should complement each other, the former directed primarily at the initiation of care for an episode of illness and the latter at the costliness of episodes, especially ongoing chronic disease episodes. Although the RAND experiment established the effects of varying prices to patients, future experiments with how physicians respond to the various tools of managed care may be useful.

IT IS NOT HARD TO DRAW a substantive link between the results of the RAND Health Insurance Experiment (HIE) and today's consumer-directed health plans.<sup>1</sup> Although such plans have numerous features, I focus here on their substantial cost sharing and in particular their high deductibles. I first describe some principal results of the HIE and then link today's high-deductible plans with those results. Because the HIE results predate managed care, I take up the relationship between managed care and cost sharing and conclude with brief thoughts on future research and health costs.

### **What Was The RAND Experiment?**

The RAND HIE randomized families to health insurance plans that varied their cost sharing from none ("free care") to a catastrophic plan that approximated a large family deductible with a stop-loss limit of \$1,000 (in late-1970s dollars), which was scaled down for the low-income population.<sup>2</sup> If one uses the rate of increase in per capita medical spending to convert late-1970s dollars into 2004 dollars, a \$1,000 deductible then would be more than a \$6,000 deductible is today.<sup>3</sup> The HIE participants in the large-deductible (95 percent coinsurance) plan used 25–30 percent fewer services than those in the free-care plan; on average, they had just under two fewer face-to-face physician visits per person per year and were 23 percent less likely to be hospitalized in a year (Exhibit 1). Substantial reductions in use were found among all income groups (data not shown).

But the heat in the hoary debate over the appropriate role for patient cost sharing was not the magnitude of any savings, but whether any reduction in use induced by increased cost sharing was among "necessary" or "unnecessary" services and therefore whether it adversely affected health. Those on the political left generally espoused the view that the services were necessary; those on the right, that they were unnecessary.

On this score, the results of the HIE had something for both sides. For most people enrolled in the RAND experiment, who were typical of Americans covered by employment-based insurance, the variation in use across the plans appeared to have minimal to no effects on health status. By contrast, for those who were both poor and sick—people who might be found among those covered by Medicaid or lacking insurance—the reduction in use was harmful, on average.<sup>4</sup> In particular, hypertension was less well controlled among that group, sufficiently so that the

**EXHIBIT 1**  
**Use And Spending Per Person In The RAND Health Insurance Experiment**

Coinsurance (percent)	Visit rates		Admission rates		Spending (2003\$)	
	Number	SE	Number	SE	Amount	SE
0 (free care)	4.55	0.17	0.128	0.0070	1,377	58
25	3.33	0.19	0.105	0.0070	1,116	51
50	3.03	0.22	0.092	0.0166	1,032	58
95 (high deductible)	2.73	0.18	0.099	0.0078	946	47

**SOURCE:** J.P. Newhouse and the Insurance Experiment Group, *Free for All? Lessons from the RAND Health Insurance Experiment* (Cambridge, Mass.: Harvard University Press, 1993), Tables 3.2 and 3.3, updating the 1991 dollar spending figures shown in Table 3.3 to 2003 dollars using the all-items Consumer Price Index for All Urban Consumers.

**NOTES:** The spending values shown are predicted from a multipart model; raw means are similar except that the spending figure for the 50 percent coinsurance plan is considerably higher because of one outlier that accounted for one-sixth of all spending on that plan. All plans with coinsurance had a \$1,000 stop-loss feature, which was scaled down for lower-income families. SE is standard error.

annual likelihood of death in that group rose approximately 10 percent. This adverse effect occurred in spite of the reduced cost sharing for low-income families, a feature generally not found in today's plans.

**So What Happened In The Interim?**

Although the HIE findings are generally supportive of initial cost sharing such as high deductibles, one might ask why, if these results had anything to do with it, a move toward greater cost sharing is only appearing some twenty years after the initial publication of the HIE results.<sup>5</sup> Whatever the explanation, it was not that the HIE results were kept under a rock and have just now been discovered. They were well known to benefit consultants and have been extensively cited by analysts such as the Congressional Budget Office (CBO).<sup>6</sup>

In fact, the results did appear to cause some short-term changes in health insurance policies. For example, initial cost sharing for inpatient services increased in the period immediately after the HIE results were published (more precisely, the number of plans with no cost sharing for inpatient services declined), and hospital admissions declined markedly, although any causal relationship between the changes in cost sharing and publication of the results must remain speculative.<sup>7</sup>

But the increased initial cost sharing for inpatient services caused almost no break in the surge of increasing health care costs. In fact, the real rate of increase in health care costs in the 1980s was the highest of any decade since 1940 save for the 1960s, the decade in which Medicare and Medicaid began. Did this leap in costs mean that the HIE results could not be generalized to the real world and, more importantly, that today's increased cost sharing will have no effect?

Although hospital admission rates fell in the 1980s, consistent with the HIE results, costs per inpatient stay rose by more than the fall in admissions as new medical capabilities came into use. Moreover, the overall changes in cost sharing may have been one cause of this pattern, because there was not only more initial cost

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sharing, presumably leading to fewer hospital stays, but also a spread of stop-loss features in private insurance.<sup>8</sup> A stop-loss feature meant that the marginal service for those in the hospital was more likely to be fully covered, consistent with the increased cost per stay.<sup>9</sup> Medicare’s implementation of the hospital prospective payment system (PPS) probably exacerbated private payers’ premium increases by shifting some fixed costs to them.<sup>10</sup>

When the increased initial cost sharing did not stem the tide of increased premiums for employer-based insurance in the 1980s, employers embraced managed care as the antidote to rising costs. Managed care promised to control costs through reductions in the unit prices of care as well as in the actual use of services and to do so without imposing financial risk on patients. If a patient used in-network providers, managed care typically lowered cost sharing relative to prior indemnity insurance arrangements; thus, it used cost sharing principally to steer patients to in-network providers rather than to deter use altogether. Although the lower cost sharing encouraged patients to seek care, managed care sought to control use through financial incentives to physicians as well as command-and-control methods such as utilization review.

And managed care did have some success in reducing costs. The rate of increase in real health care costs fell about two percentage points below its historical trend in the 1993–1997 period, a stretch of low cost-growth years not previously seen in the post-World War II period. As the readers of this journal know, however, a counterrevolution against managed care set in, in part because providers disliked the increased price competition and because neither providers nor consumers liked the command-and-control utilization review methods. The success of the counterrevolution brings us to the present day of benefit buy-downs and high-deductible health plans.

There is, however, an important wrinkle in today’s consumer-directed plans relative to old-fashioned, plain-vanilla, high-deductible plans. In the usual consumer-directed health plan, the employer contributes some of the deductible amount to an account that is earmarked for health care. Although economic theory holds that the employer’s premium savings from an increased deductible would in any event be passed on in the form of higher cash wages or other fringes, an earmarked account for health care appears to lessen employees’ resistance.<sup>11</sup> At a minimum, money in the account mitigates possible cash flow concerns.

In 2002 the Treasury Department issued a notice that an employer’s contribution to such an account is not taxable income to the employee and that any unused balance could be carried forward and applied to a subsequent year’s expenses. The balances in such health reimbursement arrangements (HRAs), however, typically

belong to the employer and thus are not portable if the employee leaves the firm.

Title XII of the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003, however, contains some provisions that should make high-deductible plans much more popular. Either an employer or employee can now contribute before-tax income to a health savings account (HSA), which functions much like a 401(k) plan in that amounts can be invested and earn tax-free. Moreover, the monies belong to the employee and so are portable.<sup>12</sup> Unlike 401(k) monies, however, funds withdrawn for health care are not taxable.<sup>13</sup> The requirements are that an individual health plan must have a minimum deductible of \$1,000 and a maximum stop-loss of \$5,000; these amounts are doubled for family plans. These plans should be particularly attractive to healthy people who pay income tax, and they are now beginning to come on to the market.

### **A Combination Of Managed Care And Cost Sharing?**

How will the increased initial cost sharing mesh with managed care? I see them as complementary. One result of the RAND HIE was that the variation in cost sharing affected the likelihood of seeing a physician or other health professional about a medical problem, but it had only a small effect on the costliness of an episode once care was sought.<sup>14</sup> By contrast, the tools of managed care aim primarily at the costliness of an episode. For example, today's disease and case management tools attempt to increase compliance with preventive measures and coordinate among providers, thereby reducing the cost of chronic disease episodes. The embryonic efforts to tier networks on quality as well as price and to improve quality by paying for performance also attempt to reduce the costliness of episodes. The use of networks to lower unit prices as well as utilization review and provider profiling to reduce service use all target spending conditional on the patient's having sought care for the problem.

Furthermore, higher initial cost sharing may make the instruments of traditional managed care more effective. Because the early managed care arrangements reduced patient cost sharing, the patient had no way to express the intensity of preferences for the service.<sup>15</sup> Thus, either the health plan or the physician was cast in the role of the bad cop who was potentially denying the patient a wanted service, stoking the fires of the counterrevolution. Although a high deductible will certainly not eliminate all such cases of denial, it will cause some voluntary reductions in care seeking for conditions that managed care would otherwise try to limit. And disease and case management tools may offset some of the reductions in appropriate care seeking that the cost sharing in the RAND HIE discouraged.

### **What Of The Future?**

On the research front, the RAND experiment's findings about the effect of cost sharing on patients' care seeking have been widely accepted, but the effects of the newer managed care strategies on providers' and patients' behavior and their ulti-

mate effects on patients' well-being are much less well established. Although much can be learned from observational data, future experiments with these tools are likely to be useful.

On the spending front, just as managed care did not ultimately hold back the wave of increased health care costs, there is little reason to think that today's increased initial cost sharing and more sophisticated tools such as disease management will hold it back, either. Although these tools should leave health care costs lower at each point in time than they otherwise would be, it is less clear that they will greatly affect the steady-state growth rate of costs. This conclusion assumes that the steady-state growth rate of costs is mainly influenced by the ongoing increase in the capabilities of medicine, capabilities that for the most part we and others around the world appear to want to pay for.<sup>16</sup> Nonetheless, to the degree that higher cost sharing for the nonpoor and the newer tools of managed care can lower the waste and inefficiency in present-day medicine, they will be welcome.

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**NOTES**

1. For a summary of the results of the RAND Health Insurance Experiment, see J.P. Newhouse and the Insurance Experiment Group, *Free for All? Lessons from the RAND Health Insurance Experiment* (Cambridge, Mass.: Harvard University Press, 1993).
2. Families were randomized to plans with a stop-loss feature of 5, 10, or 15 percent of income or \$1,000, whichever was less; most families had a stop-loss of \$1,000.
3. A more traditional conversion would use the medical care component of the Consumer Price Index, which increased by a factor of 4.8 between 1978 and 2003, but that would not account for the cost of new medical treatments when they were first introduced. Further, there are severe methodological difficulties with historical medical care price indices. See E.R. Berndt et al., "Medical Care Prices and Output," in *Handbook of Health Economics*, ed. A.J. Culyer and J.P. Newhouse (Amsterdam and New York: Elsevier, 2000), 119–180; and J.P. Newhouse, "Medical Care Price Indices: Problems and Opportunities," *Academia Economic Papers* 29, no. 1 (2001): 1–65.
4. The poor and sick were those in the lowest 20 percent of both the income and health distributions.
5. Initial results on utilization were published in J.P. Newhouse et al., "Some Interim Results from a Controlled Trial of Cost Sharing in Health Insurance," *New England Journal of Medicine* 305, no. 25 (1981): 1501–1507; and on health outcomes, in R.H. Brook et al., "Does Free Care Improve Adults' Health? Results from a Randomized Controlled Trial," *New England Journal of Medicine* 309, no. 23 (1983): 1426–1434. The substantial variation in the use of services across areas at a point in time with little or no observable effects on health outcomes is consistent with the HIE findings. See E.S. Fisher et al., "The Implications of Regional Variations in Medical Spending, Part 1: The Content, Quality, and Accessibility of Care," *Annals of Internal Medicine* 138, no. 4 (2003): 273–287, and "The Implications of Regional Variations in Medical Spending, Part 2: Health Outcomes and Satisfaction with Care," *Annals of Internal Medicine* 138, no. 4 (2003): 288–298.
6. See, for example, Congressional Budget Office, *Changing the Structure of Medicare Benefits: Issues and Options* (Washington: CBO, 1983); CBO, *Effects of Managed Care: An Update* (Washington: CBO, 1994); and CBO, *The High-Deductible/MSA Option under Medicare: Exploring the Implications of the Balanced Budget Act of 1995* (Washington: CBO, 1996). Already in 1983 the Xerox Corporation cited the HIE results in a brochure to its employees explaining a rise in the deductible in the company's insurance plan; the relevant portion of the brochure is quoted in Newhouse et al., *Free for All?*, 341.
7. The percentage of insurance plans requiring a front-end deductible for hospital costs rose from 30 percent in 1982 to 63 percent in 1984. Data are from Hewitt Associates, cited in J. Goldsmith, "Death of a Paradigm: The Challenge of Competition," *Health Affairs* 3, no. 3 (1984): 5–19. Between 1982 and 1988, admission rates excluding normal deliveries among those ages 15–44 fell 34 percent, and among those ages 45–64, 28 percent. Data are from the National Center for Health Statistics, "Utilization of Short Stay Hospitals," cited in

- Newhouse et al., *Free for All?*, 341–344.
8. The proportion of major medical policies with a stop-loss feature rose from 78 percent to 98 percent between 1980 and 1984, according to data from the Health Insurance Association of America, cited in *ibid.*, 342.
  9. Similarly, a later analysis of the effects of medical savings accounts on spending showed that relative to current policies, their more generous back-end coverage would approximately offset their much larger initial cost sharing. E.B. Keeler et al., “Can Medical Savings Accounts for the Nonelderly Reduce Health Care Costs?” *Journal of the American Medical Association* 275, no. 21 (1996): 1666–1671.
  10. J.P. Newhouse, *Pricing the Priceless: A Health Care Conundrum* (Cambridge, Mass.: MIT Press, 2002).
  11. For the standard economic theory that changes in employer health care costs will be reflected in changes in other compensation, see L.H. Summers, “Some Simple Economics of Mandated Benefits,” *American Economic Review* 79, no. 2 (1989): 177–183; and M.V. Pauly, *Health Benefits at Work: An Economic and Political Analysis of Employment-Based Health Insurance* (Ann Arbor: University of Michigan Press, 1997).
  12. The HIE had hold-harmless side payments that somewhat resemble health savings accounts; in particular, the side payments could be used for any purpose, not just health care.
  13. If funds are withdrawn for nonhealth purposes before one is eligible for Medicare, not only are they not taxable, but there is also a 10 percent penalty, similar to the penalty for withdrawal from a 401(k) plan before age fifty-nine and a half. The penalty is waived for those eligible for Medicare.
  14. Newhouse et al., *Free for All?*, Tables 4.3, 4.5, 4.7, and 4.8.
  15. M.V. Pauly and S. Ramsey, “Would You Like Suspenders to Go with That Belt?” *Journal of Health Economics* 18, no. 4 (1999): 443–458; and M.B. Rosenthal and J.P. Newhouse, “Managed Care and Efficient Rationing,” *Journal of Health Care Finance* 28, no. 4 (2002): 1–10.
  16. On other countries’ being willing to pay, see J.P. Newhouse, “Medical Care Costs: How Much Welfare Loss?” *Journal of Economic Perspectives* 6, no. 3 (1992): 3–21. On medical advances’ being worth their cost, see D.M. Cutler, *Your Money or Your Life: Strong Medicine for America’s Health Care System* (New York: Oxford University Press, 2004).