

**REFUSAL AND ATTRITION IN THE RAND HEALTH INSURANCE
EXPERIMENT: A RESPONSE TO NYMAN**

**Joseph P. Newhouse
Harvard University**

**Emmett B. Keeler
RAND**

**Arleen Leibowitz
University of California (Los Angeles)**

**Willard G. Manning
University of Chicago**

**Charles E. Phelps
University of Rochester**

**John E. Rolph
University of Southern California**

John Nyman (Nyman 2007) argues that the usual interpretation of the RAND Health Insurance Experiment – modest cost sharing reduces use of services with negligible effects on health for the average person – is an artifact that results from greater attrition by those in plans with cost sharing. In particular, he speculates that if those facing hospitalization on cost sharing plans differentially dropped out of the Experiment, the observed medical expenditure would be lower and health status would be better among those remaining in the cost sharing plans.

When we analyzed the data from the Experiment, we were sensitive to the possibility that differential attrition by plan – and although Nyman does not note it, also differential refusal rates by plan at the time of enrollment – could have affected our results. We conducted several analyses that convinced us that Nyman’s speculation is unwarranted and that the usual interpretation of our results is correct. Those analyses are described on pages 17-26 of *Free for All? Lessons from the RAND Health Insurance Experiment* (Newhouse and the Insurance Experiment Group 1993), which is reproduced on Newhouse’s home page (http://www.hcp.med.harvard.edu/people/hcp_core_faculty/joseph_newhouse); there is further analysis of these issues in (Newhouse et al. 1987).

Here we summarize the main points that lead us to conclude that the usual interpretation of the RAND Experiment results is correct.

1. Nyman falsely asserts that participants on the cost sharing plans facing a hospitalization had a financial incentive to drop out. This was likely true in

the studies of plan switching he cites, but we designed the Experiment so that it would not be true. In fact, it was always in the financial interests of the Experiment's participants to remain enrolled because the Experiment made unconditional monthly side payments to the participants in cost sharing plans that held them harmless against their worst case (the "Participation Incentive") and in addition paid them a lump sum if they completed the experiment (the "Completion Bonus.") Thus, there is no a priori reason to expect financially motivated attrition occurred. (We note in passing that all the Experimental cost sharing plans had a stop-loss feature that was at most \$1,000 for medical spending for the entire family for a year. As a result, even had there been no side payments, many individuals facing hospitalization would have been better off financially on the Experimental plan than on the plan to which they could return, many of which had no stop loss feature.)

2. In his assertion that differential attrition can explain why cost sharing had negligible effects on health, Nyman ignores the fact that at the end of the Experiment we were able to collect health status data on 77 percent of those who had left the Experiment prematurely (85 percent of those who survived). These people are included in the reported general health results, so there is little reason to expect bias in the health status results.
3. Similarly, our analyses gave us confidence that differential attrition did not materially bias the utilization results. Utilization while in the experiment by those who left was similar to those who did not leave (except for the one percent of participants on each plan who died, who experienced high end-of-life spending). We believe this finding greatly strengthens the likelihood that the utilization results are not an artifact of non-random attrition. Nyman, however, dismisses this argument with the assertion that individuals facing hospitalization would have withdrawn. Even ignoring the point made above that withdrawing would have left them worse off financially (because of the side payments), his argument at best would only apply to anticipated hospitalizations; if one is suddenly hospitalized, for example with a heart attack, it would be too late to change insurance policies. And anticipated hospitalizations would likely have generated above average expenses in the period prior to hospitalization, as individuals sought care and physicians carried out diagnostic tests. We did not observe that.
4. Moreover, Nyman's speculation about a high degree of non-random attrition is contradicted in work that is unpublished but also posted on Newhouse's home page. In this work Manning, Duan, and Keeler carried out additional analyses of those who did not complete the Experiment. They concluded that there was in fact a modest amount of non-random attrition, but that its effects, if accounted for, would have left our conclusion that cost sharing reduced use unchanged.
5. Nyman's dismissal of the Experiment's result that cost sharing causally reduces utilization is further undermined by the enormous number of observational studies over many years, in many settings, with many different methodologies, that find utilization of medical services responds to relatively modest cost sharing (e.g., (Cherkin et al. 1989; Newhouse and Phelps 1976;

Scitovsky and McCall 1977; Wedig 1988)). Recent work has focused on cost sharing for drugs and also finds an effect of differential copayment on use (e.g., (Goldman et al. 2004; Huskamp et al. 2005; Joyce et al. 2002; Landon et al. 2007)). Even the rate of emergency room visits respond to cost sharing, as it did in the Experimental results (e.g., (Hsu et al. 2006; O'Grady et al. 1985; Selby et al. 1996)). In these studies the income transfer effect of insurance that Nyman describes in the opening part of his comment does not have a material effect, because the amount of the cost sharing is a small fraction of income.

The fact remains that in the RAND Experiment there was greater attrition within the cost sharing plans. But from the above analysis we believe this does not affect the usual interpretation of our results, either because we collected the relevant data on those who withdrew and incorporated it into the analysis (the health status findings) or because attrition was largely unrelated to a person's propensity to use medical services (the utilization findings).

REFERENCES

- Cherkin, Daniel C., Louis Grothaus, and Edward H. Wagner (1989), "The Effect of Office Visit Copayments on Utilization in a Health Maintenance Organization," Medical Care, 27(11): 1036-1045.
- Goldman, Dana P., Geoffrey F. Joyce, and Jose J. Escarce (2004), "Pharmacy Benefits and the Use of Drugs by the Chronically Ill," Journal of the American Medical Association, 291(19): 2344-2350.
- Hsu, John T., Mary Price, Richard Brand, Vicki Fung, Tom Ray, Bruce Fireman, Joseph P. Newhouse, and Joseph V. Selby (2006), "Cost Sharing for Emergency Care: Findings on Adverse Clinical Events from the Safety and Financial Ramifications of ED Copayments Study (SAFE)," Health Services Research, in press
- Huskamp, Haiden A., Richard G. Frank, Kimberly A. McGuigan, and Yuting Zhang (2005), "The Impact of a Three-Tier Formulary on Demand Response for Prescription Drugs," Journal of Economics and Management Strategy, 14(3): 729-753.
- Joyce, Geoffrey F., Jose J. Escarce, Matthew D. Solomon, and Dana P. Goldman, (2002), "Employer Drug Benefit Plans and Spending on Prescription Drugs," Journal of the American Medical Association, 288(14): 1733-1739.
- Landon, Bruce E., Meredith B. Rosenthal, Sharon-Lise T. Normand, Claire Spettell, Adam Lessler, Howard R. Underwood, and Joseph P. Newhouse (2007), "Incentive Formularies and Changes in Prescription Drug Spending," American Journal of Managed Care, 13(Part 2): 360-369.
- Newhouse, Joseph P., Willard G. Manning, Naihua Duan, Carl N. Morris, Emmett B. Keeler, Arleen Leibowitz, M. Susan Marquis, William H. Rogers, Allyson Davies, Kathleen N. Lohr, John E. Ware, Jr., and Robert H. Brook (1987), "The Findings of the RAND Health Insurance Experiment - A Reponse to Welch, et al.," Medical Care, 25(2): 157-179.

- Newhouse, Joseph P., and Charles E. Phelps (1976), "New Estimates of Price and Income Elasticities for Medical Care Services," The Impact of Health Insurance on the Health Services Sector, Richard Rosett, ed. New York: National Bureau of Economic Research
- Newhouse, Joseph P., and the Insurance Experiment Group (1993), Free for All? Lessons from the RAND Health Insurance Experiment; Cambridge: Harvard University Press.
- Nyman, John A. (2007), "American Health Policy: Cracks in the Foundation?," Journal of Health Politics, Policy, and Law, 32(5): 759-783.
- O'Grady, Kevin F., Willard G. Manning, Joseph P. Newhouse, and Robert H. Brook (1985), "The impact of cost sharing on emergency department use," New England Journal of Medicine, 313(August 22): 484-490.
- Scitovsky, Anne A., and Nelda McCall (1977), "Coinsurance and the Demand for Physician Services: Four Years Later," Social Security Bulletin, 40(May): 19-27.
- Selby, Joe V., Bruce H. Fireman, and Box E. Swain (1996), "Effect of a Copayment on Use of the Emergency Department in a Health Maintenance Organization," New England Journal of Medicine, 334(10): 635-641.
- Wedig, Gerard J. (1988), "Health Status and the Demand for Health: Results on Price Elasticities," Journal of Health Economics, 7(2): 151-163.