

The Cost Effectiveness of Health Insurance

To the editors: Muennig et al.¹ calculate the cost effectiveness of health insurance. There are several methodologic problems. First, the authors use an observational study to presume a causal relationship of health insurance on the health of patients. Simple comparisons ignore the complexity of the relationship. This assumption is questionable and even denied by some researchers.² For example, patients with good health might be more likely to have health insurance.

Second, patients' classification into insured and uninsured categories is based only on this status at a point in time and ignores their previous insurance status. Patients' prior insurance history is relevant for analyzing health outcomes.²

Third, insured and uninsured populations are treated as homogeneous groups, and the differences in mortality and quality-adjusted life years (QALYs) are extrapolated across all of the uninsured population. Previous studies have documented significant differences among populations with identical insurance coverage based on race/ethnicity, education, income, and place of residence,³ to name a few. Therefore, although it is reasonable to presume that health insurance would increase access and could result in improved health status, there is no evidence that the benefit would be either identical across the previously uninsured or that the improvement would be equal to those with health insurance.

Finally, the estimate that the additional societal costs of providing health insurance over a 45-year period are only \$30,000 is low. As a member of the California Public Employee Retirement System, an organization that negotiates group health insurance rates for 1.2 million employees and their family members, my university pays \$335 per month (\$4020 per year).⁴ This is the group rate for a single person receiving care from the Kaiser Permanente HMO, the cheapest alternative. If we make the conservative assumption that cost of health care will increase only at the rate of inflation, then the present value of each year of medical care will remain at \$4020, and then the present value of the cost of 45 years of medical care would be \$180,900. Note, however, that the costs of health care are increasing much more than inflation, but that even the conservative under-estimate of \$180,900 is six times greater than the \$30,000 estimate proposed by the authors. The resulting cost-effectiveness numbers should be smaller by a factor of six.

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In reply: We wish to respond to Dr. Richman's last comment first, as it illustrates a number of common misunderstandings about health economics. First, most effective interventions cost money up front, but reduce the severity of illness down the line. Less illness usually translates into fewer medical visits, fewer hospitalizations, and an improved quality of life. Second, despite being uninsured, uninsured persons use medical care, and this care comes at a cost. Third, it is widely accepted that people value future expenditures less than present expenditures, and future expenditures should therefore be discounted.¹

We found that providing the uninsured with an insurance policy would cost \$47,000 over 45 years at a 3% discount rate. Over this time, the uninsured would have used \$17,000 in medical services at the same discount rate. We estimate the societal cost to be \$47,000 – \$17,000 = \$30,000. If we express the cost of Dr. Richman's policy in constant 1994 dollars, it would cost \$2445 per year, or \$29,096 over 45 years at a 3% discount rate. If society gave the average uninsured person Dr. Richman's policy, it would cost just \$29,000 – \$17,000 = \$12,000, not \$180,000. Of course, the cost of providing care to insured persons such as Dr. Richman is lower than providing care to the uninsured, so our estimate is higher.

Putting the issue another way, we are not simply looking at the cost of insurance for those currently uninsured, but at the projected difference in healthcare costs. While the cost of health care has increased dramatically since 1994, so has effectiveness. Thus, the ratio of cost to effectiveness may have not changed a great deal. These issues are discussed in detail in the paper and the technical appendix. There, we provide sensitivity analyses, and demonstrate that our findings are robust across a wide array of alternative assumptions.

Dr. Richman states that the insured and uninsured were treated as homogeneous groups. Here, there is a misunderstanding about the way that costs and effectiveness values were calculated. We used the predictive function of linear regression analysis to estimate what would happen to uninsured persons in the United States (given their socio-demographic and other characteristics—exactly those identified by Dr. Richman) if they were given health insurance. As expected, we found that the benefits of health insurance were substantially lower for uninsured persons than for insured persons. (Dr. Richman's net discounted insurance costs summed over 45 years amount to \$12,000 rather than \$30,000 precisely because the insured tend to be healthier.)

Finally, we share Dr. Richman's remaining concerns about imputing causality from observational data. This is the central

problem facing all analysts trying to make projections in the absence of randomized trials (although even when armed with trials, problems exist with external validity). There are a variety of techniques available to address this problem, several of which we employ. These issues are addressed in detail in the discussion section of our paper² and the technical appendix.

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