# WASTE DUE TO MORAL HAZARD IS SMALL WHEN INDEMNITIES ARE USED TO ACCOUNT FOR ACCESS THEORY OF HEALTH INSURANCE

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Sept 1, 2017 (target date to get out)

**Commented [cr1]:** TARGET JOURNAL: *Health Affairs* (impactful for both policy and health economics readers; allows 2,500-5,000 words)

HA has previously published online vignette experiments, e.g., Murtagh…Mello 2012, "Disclosure-And-Resolution Programs That Include Generous Compensation Offers May Prompt
A Complex Patient Response". They did not use Mturk however; rather used Knowledge Networks.

HA uses these sorts of declaratory titles.

[unlabeled background section]

Building on pivotal papers from the 1960s and 1970s, textbook health economics theory has focused on how insurance stimulates wasteful spending, through "moral hazard," because patients deciding whether to consume care do not bear its price. Although insurance can enhance welfare by laying off risk,[1] some have even estimated that the waste is so great that health insurance may do more harm than good.[2,3,4,5,] These scholars have called for dramatic changes to health insurance coverage, including copay burdens as high as 66% of healthcare costs. This body of work has been deeply influential on the U.S. political hesitancy to adopt universal and fulsome health insurance coverage.

To conceive and them measure this waste, the standard analysis has used uninsurance (or less insurance) as its counterfactual for comparison, idealizing the individual patient holding her own wallet necessarily weighs the costs of care against its benefits. On this "general theory that health economists apply to insurance … some of the use of medical care that insurance stimulates (compared with having no insurance, when a person pays the full market price) must by definition be care that is worth less to the person than its market price."[6] Pauly goes on to explain that, on standard economic assumptions, "care that is worth less than it costs is wasteful." [7] If uninsured people are <u>not</u> buying a $100,000 treatment, then the treatment is not worth $100,000. If insured people <u>do</u> buy it, that is waste, and insurance has made us worse off.

John Nyman has suggested an alternative theory of health insurance, which as he put it "stands conventional theory on its head."[8] Rather than traditional economic theory's focus on risk, Nyman focuses on access instead. The point of health insurance is not just to smooth out wealth across low and high years of health spending. Rather it gives patients access to healthcare they otherwise could not afford. This effect becomes most apparent for expensive treatments such as a heart stent or a cancer drug, whose cost can easily be substantial portions of, or even multiples of, median U.S. income.

Even under the access theory, *some* of the marginal additional spending caused by fulsome health insurance coverage may be wasteful, and should be targeted with cost-sharing or other interventions. But since we cannot infer that *all* the extra spending is waste, we need a more nuanced

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[1] Kenneth Arrow, *Uncertainty and the Welfare Economics of Medical Care*, 53 AM. ECON. REV. 5, 941-73 (1963).

[2] *Id*. at 534.

[3] Richard Zeckhauser, *Medical insurance: A case study of the tradeoff between risk spreading and appropriate incentives*, J. ECON. THEORY, 10 (1970).

[4] Martin S. Feldstein, *The Welfare Loss of Excess Health Insurance*, 81 J. POL. ECON. 2, 276-277 (1973).

[5] Roger Feldman & Bryan Dowd, *A New Estimate of the Welfare Loss of Excess Health Insurance*, 81 AM. ECON. REV. 1, 297, 300 (1991).

[6] Pauly, Mark V. "Medicare drug coverage and moral hazard." Health Affairs 23.1 (2004): 113-122.

[7] Pauly, Mark V. "Medicare drug coverage and moral hazard." Health Affairs 23.1 (2004): 113-122.

[8] JOHN A. NYMAN, THE THEORY OF DEMAND FOR HEALTH INSURANCE, xiii (2003). Nyman explains in the preface (xiii) that his fundamental theory was first submitted to peer reviewed journals in 1995, but was rejected for four years before eventually being published.

identification strategy. As Nyman himself says, "the challenge for policy is to distinguish one from the other."[9] Nonetheless, there has been no empirical work focused precisely on this question.

To identify such waste requires an analytical counterfactual for comparison. We propose a fully-insured person, whose insurance benefit is paid in cash (as an "indemnity"), rather than paid in-kind to providers, as in extant health insurance plans. Suppose that insurers paid patients cash when the patient becomes ill and eligible to consume an expensive treatment. The patient would be allowed to keep the money and spend it on anything she may desire, including but not limited to, the covered treatment. This "indemnity" mechanism maintains an opportunity cost for patients -- all the alternative things they could do with the money instead of consuming healthcare. An indemnity would recreate a market discipline, while nonetheless guaranteeing access to care.

A few scholars have proposed such an indemnity system, where health insurers would pay a cash benefit to patients rather paying providers.[10,11,12] Indeed, in other insurance markets, insurers sometimes pay cash benefits. [13] Scholars have nonetheless supposed that for health insurance, an indemnity might be infeasible, because it would be difficult for an insurer to observe the severity of each particular patient's illness so as to tailor the amount of the indemnity accordingly. Nonetheless, in the current system where benefits are paid to providers, insurers already depend on physicians, in the first instance, and on other claims reviewers, secondarily, to determine what sorts of care a patient needs, subject to certain exclusions defined by the policy and subject to various appeals processes. That same need would exist under an indemnity system.

Aside from its real-world feasibility an indemnity system is useful for analytical purposes to estimate the scale of the moral hazard problem in light of the access theory of health insurance. Since there are no such extant pure indemnity systems in health insurance, a laboratory approach is appropriate. We conducted a blinded randomized experiment, using vignettes depicting a clinical scenario developed by physician for prior research, and we manipulated both the quality of the care and type of insurance.

**STUDY DATA AND METHODS**

**Survey Questionnaire** -- Full materials are shown in the Supplemental Appendix. We collected basic demographics from each respondent, including income and insurance status. To help focus respondents on their real ability to pay, we also asked "Purchasing power is different. If you needed to make a very important purchase what is the maximum of money that you could access to make that purchase within one month from today? Please consider all sources of money or credit accessible to you, including cash, cars that you could sell or refinance, home equity that you could access through a loan, personal loans

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[9] *Id*. at 165.

10 *See* Frank D Gianfrancesco, *A Proposal for Improving the Efficiency of Medical Insurance*, 2 J. HEALTH ECON. 176, 176 (1983).

[11] Robert F. Graboyes, *Our Money or Your Life: Indemnities vs. Deductibles in Health Insurance* 1–2 (Fed. Reserve Bank of Richmond, Working Paper No. 00-04, 2000), *available at* http://www.richmondfed.org/publications/research/working_papers/2000/pdf/wp00-4.pdf

[12] Mark V. Pauly, *Indemnity Insurance for Health Care Efficiency*, 24 ECON. & BUS. BULL. 53, 53 (1971).

13 *See* Susan Feigenbaum, *"Body shop" Economics: What's Good for Our Cars May Be Good for Our Health*, *in* 15 REGULATION: CATO REV. BUS. & GOV'T 25, 27 (1992).

from friends or family, money in health savings accounts, money in retirement accounts, gifts, and donations. Please type the dollar amount that is the MAXIMUM amount that you could spend if absolutely necessary to make such a purchase." We then asked, "Please explain briefly how you would come up with that amount of money. From what sources would you draw to reach that amount?"

The vignettes depicted a hypothetical drug ("Bucarin") as an additional chemotherapy for colon cancer. To increase engagement, we interrupted the vignettes with a writing task to allow respondents to reflect on how they would feel in the situation ("Please refer to the story specifically, and share a few sentences describing how you would feel in this medical situation, and your thoughts about your treatment options described so far."). We also asked respondents explain their ultimate consumption decisions, to further increase engagement and produce qualitative data.

The vignette was randomly manipulated with two variables (2x3). First we manipulated whether the perceived value of the treatment, with it being FDA-approved, with proof of safety and efficacy for the patient's condition, versus being offered for an off-label use where proof of safety and efficacy had not been made.

Second, we manipulated the respondent's insurance status: they were either uninsured, they had traditional insurance, or they were insured in a cash indemnity program. In both of the insurance conditions, there was no cost-sharing required, on the theory that the patient had already reached her annual maximum, when confronting this treatment choice. In the indemnity condition, respondents were told, "Your insurance company also has a unique program, in which they cover special drugs with a cash payment, called an indemnity (similar to home owners insurance or car insurance). Because your physician has indicated that you are a candidate for Bucarin, you receive a $80,000 cash payment from your insurance company. You receive the money regardless of whether you decide to take the Bucarin. You decide whether you spend the cash on the Bucarin treatment or instead keep the money for whatever other purposes you may choose. In deciding, please be realistic."

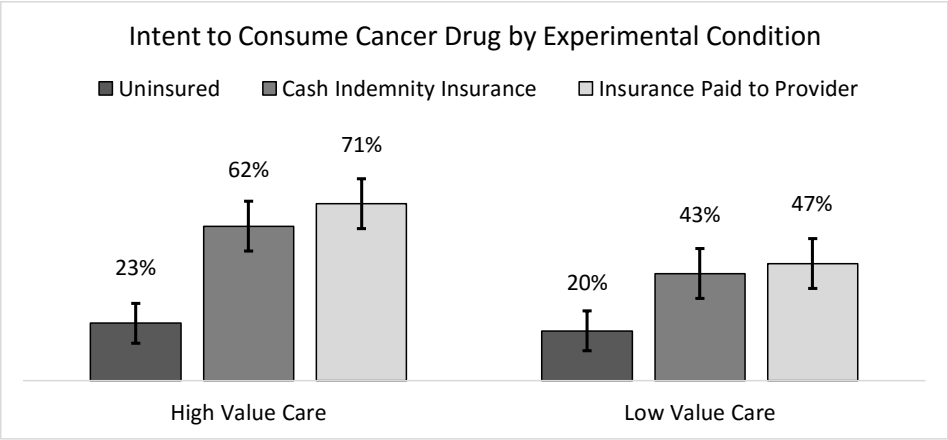
For those in the uninsured condition, to make their consideration more realistic, we asked two preliminary questions, "Assuming you were able to somehow pay for it, would you want to take the Bucarin treatment?" and "Realistically, considering your actual wealth and available credit, would you be able to purchase Bucarin?" For all respondents, our primary dependent variable was a binary answer to the question, "overall in this scenario would you take Bucarin?"

**Samples.** We recruited 600 respondents from an online population provided by Amazon.com. [disclose payment amount and IRB status] [summarize demographics]

**Limitations.** People may respond differently to indemnity payments and cancer in the real world. [say more]

**STUDY RESULTS**

[These are based on my quick-and-dirty analysis. I am assuming these will hold up after Andy creates adjusted estimates, etc.]




We found substantial difference is consumption between high value care and low value care. We also found substantial differences between consumption under uninsurance and traditional insurance paid to provider. We found little or no difference between indemnities and traditional insurance however.

These results are shown in the Figure. The difference between the first two bars is the access function of insurance, given that the patient receives sufficient wealth to cover the treatment in the second condition. The difference between the second and third bars is the waste of moral hazard, given that the benefit is fungible in the second but not the third condition, which represents the standard sort of health insurance now existing.

As expected, we observe a substantial difference in consumption between uninsurance and traditional insurance – insurance doubles or triples the rate of consumption. However, we observe little or no difference between traditional insurance and the indemnity payment. Even with 600 respondents, the difference is not statistically significant at traditional levels. (We confirmed that respondents understood the cash payment mechanism, and excluded those who did not. The results were robust.) Thus, from this data, we cannot conclude that there is any moral hazard waste whatsoever.

In particular, economic theory might expect to see more such waste in the low-value conditions – with traditional in-kind insurance patients say, *'what the heck, might as well try it since its free to me*.' In this condition, people with cash indemnity should be much more sensitive to the low-value of the care, and the gap should grow compared to traditional insurance. To the contrary, when people learn that the treatment is unproven, we see a substantial reduction in their intent to consume in both the cash indemnity and traditional insurance systems. While consumption of the low-value treatment remains substantial, it seems to largely reflect the considered judgments of those patients that the treatment is worthwhile at the price demanded.

**DISCUSSION**

Thus the waste from moral hazard appears remarkably small, if it exists at all. Even supposing our central estimate that the there is a 9% marginal difference in the high value care, that waste is one fourth the size of the access effect of insurance (a 40% marginal difference). Similarly, in the low-value condition moral hazard waste may account for a marginal 4% of the consumption, but the access effect is more than five times as large (23% on the margin). Although we are not measuring welfare itself, the relative effects on consumption controvert the traditional economic theorists' suppositions that health insurance may make people worse off.

Other work has shown that there is substantial waste in the U.S. healthcare system. Our data suggests that health insurance is not the primary cause.

This study is largely illustrative. We have only tested a single medical procedure. If the procedure were less expensive, we would expect to see more people consuming it even if uninsured (the first bar), insurance then may make little difference, regardless of its form. Its also possible that real patients would respond differently than our respondents did when asked to imagine the situation. Nonetheless, this experiment suggests that, when properly understood, the wasteful consumption caused by health insurance may be minimal.

**CONCLUSION**

**SUPPLEMENTAL APPENDIX**

The base vignette used in Study 1 is reproduced verbatim:

'Please imagine yourself in the following situation.

Over the last month, blood has occasionally appeared in your stool, when you used the bathroom. You make an appointment to see a doctor. After receiving normal results from some tests, the doctor suggests a colonoscopy to determine the cause of the bleeding. The test reveals a mass, and so a biopsy is performed.

The biopsy confirms that the bleeding is caused by adenocarcinoma of the colon. Your oncologist performs further tests to determine if the cancer has spread beyond the colon. The tests, including a CT scan, are negative. Therefore, surgery is scheduled to remove the tumor, and hopefully provide a complete cure.

However, the surgeons discover that the tumor has spread past the wall of the colon and infected two small lymph nodes.

These findings substantially change the prognosis. It is now much less likely that surgery alone will result in a full recovery. …

Hence, the oncologist tells you that chemotherapy is the standard treatment. The oncologist estimates that the chance of survival from this cancer, with the standard chemotherapy treatment, is 70%. The doctor is called away, and will be back shortly. [writing task]

The doctor suggests that another drug, Bucarin, could be added to the standard chemotherapy regimen to improve the chances for a cure. [high-low manipulation]

Furthermore, Bucarin also has potential side effects, including excessive bleeding and high blood pressure. Your oncologist recommends Bucarin despite these limits, but he explains that many other oncologists do not use Bucarin for colon cancer. The choice is yours. [insurance manipulation]'

**TABLE S1. Experimental Manipulations Used in Study 1**

| | **Type of Insurance** | **Quality of Treatment** |
|---|---|---|
| **Level 1** | [UNINSURED] In this case, Bucarin will cost an additional $80,000. Please imagine that you currently do not have health insurance, however you do have the same amount of wealth and credit that you actually have in the real world (the amount you provided in your answer above). So, only if you have enough money available, you can pay for the Bucarin yourself. Please consider, however, other | [LOW VALUE] Bucarin has been approved by the Food and Drug Administration, in combination with standard chemotherapy, to treat patients suffering from lung and pancreatic cancers -- not for colon cancer, which you have. However, some oncologists use Bucarin "off-label" for colon cancer too. The advantages of |

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|---|---|---|
| | things you may prefer to do with the money. Please be realistic. | Bucarin for colon cancer have not proven to be effective. |
| **Level 2** | [INDEMNITY INSURANCE] In this case, Bucarin will cost an additional $80,000. Thankfully you have full health insurance, and you have already met your annual deductible. Your insurance company also has a unique program, in which they cover special drugs with a cash payment, called an indemnity (similar to home owners insurance or car insurance). Because your physician has indicated that you are a candidate for Bucarin, you receive a $80,000 cash payment from your insurance company. You receive the money regardless of whether you decide to take the Bucarin. You decide whether you spend the cash on the Bucarin treatment or instead keep the money for whatever other purposes you may choose. In deciding, please be realistic. | [HIGH VALUE] Bucarin has been approved by the Food and Drug Administration, in combination with standard chemotherapy, to treat patients suffering from colon cancer, which you have. That means that the advantages of Bucarin for colon cancer have been proven to be effective. |
| **Level 3** | [TRADITIONAL INSURANCE] In this case, Bucarin will cost an additional $80,000. Thankfully you have full health insurance, and you have already met your annual deductible, so there is no additional cost to you out of pocket, if you choose to take the Bucarin treatment. In deciding, please be realistic. | |