Evidence of Strategic Behavior in Medicare Claims Reporting

Hamsa Bastani, Joel Goh, Mohsen Bayati

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Hospital acquired conditions (HACs), defined as infections or complications developed by patients as a consequence of medical treatment, place a huge burden on society. In 2002 alone, there were an estimated 1.7 million HACs in the U.S., causing an estimated 100,000 deaths and a cost of $28-34 billion [1]. Evidence has shown that 65-70% of common HACs are preventable through the use of better clinical practices [2]. Yet, until recently, Medicare's fee-for-service model reimbursed healthcare providers for these conditions regardless of whether or not they were due to an avoidable lapse in the provider's quality of care. Furthermore, a study found that providers could actually increase their margins up to eight-fold when a patient acquired a HAC [3], creating perverse incentives for providers to increase their HAC rates.

Medicare addressed this issue through the HAC nonpayment policy, which aimed to incentivize providers to reduce HAC incidence by placing the financial burden of treating HACs on the provider rather than on Medicare. The law, which took effect in late 2008, ordained that providers are required to report whether the condition is present-on-admission (POA) or not. If the condition is not POA, it will not be reimbursed, causing a large financial loss to the provider. Unfortunately, multiple sources of evidence suggest that the HAC nonpayment policy has had little impact on the rate of HACs [4]. It has been hypothesized that this may be because the financial impact of the policy was too small to influence significant change in practice. In response, further Medicare legislation has been issued in the form of the HAC Reduction Program, which will create harsher penalties starting in 2015 for providers with high HAC rates.

In this paper, we propose an alternate explanation for the lack of improvement in HAC incidence: we find evidence that providers may be untruthfully reporting HACs as POAs in the

claims data in order to continue receiving reimbursement for treatment. This practice is known as *upcoding*. Ideally, one would be able to identify upcoding from variations in national claims reporting trends; however, this is challenging because upcoding (if it exists) biases the reported data we observe. Moreover, the data is confounded by unobserved variations in provider quality and patient risk. We introduce a different approach that allows us to detect upcoding from national claims data by exploiting state-level variations in adverse event regulation. We perform causal inference using data from 1.5 million Medicare inpatient stays and detailed data on state reporting systems from the Office of Inspector General (OIG). To the best of our knowledge, our work is the first to identify and quantify upcoding at a national level, as well as to show that providers respond to regulatory incentives by modifying their upcoding behavior.

In particular, many states passed laws that mandated the reporting of various HACs prior to the federal nonpayment policy in 2008, along with measures to ensure truthful reporting. We find that providers in strongly-regulated states report (1) lower risk-adjusted POA rates, and (2) higher risk-adjusted HAC rates relative to providers in weakly-regulated states. While (1) can be explained if providers in weakly-regulated states admit more infection-susceptible patients (due to unobserved risk factors) or because they have better infrastructure for infection detection, both of these arguments are inconsistent with finding (2). We argue that both findings can only be explained through upcoding behavior.

One concern in our analysis is that states with high HAC rates may selectively have introduced adverse event reporting regulation, which would explain why strongly-regulated states have higher HAC rates. To account for this endogeneity, we use an instrumental variable approach: our instruments are various measures of state taxation levels which are correlated with the "strength" of a state's regulatory environment, but bear no direct relationship with patient

infection rates. We find our results remain consistent despite accounting for this endogeneity. Furthermore, we find that providers in strongly-regulated states have relatively lower risk-adjusted mortality rates, suggesting that they have higher quality of care overall.

We find that at least 6,000 infections are upcoded per year, resulting in an added annual cost burden of $200 million to Medicare. The practice of upcoding has therefore eroded the financial incentive for providers to reduce HAC rates, thereby reducing the effectiveness of Medicare's nonpayment policy. Medicare's current plan to increase penalties through the HAC Reduction Program does not address these concerns, and may in fact exacerbate the problem since providers with high HAC rates will face even greater financial pressure to engage in upcoding. Moreover, providers that are trying to report more accurately than others will be unfairly penalized. Our results suggest that in order for HAC reduction policies to be effective and fair, federal regulation must be introduced to induce truthful reporting. We provide policy recommendations based on existing state reporting systems that appear to be (relatively) effective at eliciting truthful reporting. More broadly, we emphasize the importance of auditing as Medicare moves towards additional pay-for-performance policies in the future.

References

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