Peer Review File

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Reviewer A

Comment 1:

I'd like to mention this following paper:

Jiang, J.X., Polsky, D., Littlejohn, J. et al. Factors Associated with Compliance to the Hospital Price Transparency Final Rule: a National Landscape Study. J GEN INTERN MED 37, 3577–3584 (2022). https://doi.org/10.1007/s11606-021-07237-y

This published paper also examined hospital compliance to the federal hospital price transparency rule and assessed factors associated with the varying compliance rates, using the same hospital disclosed price data for the year of 2021 (except compiled by Turquoise, a different data vendor). The overall findings are similar (e.g. limited compliance rate, positive association between compliance and for-profit status, system affiliation status, market share, and geographic areas).

I am not sure if this manuscript is unique/innovative enough, given the similarities in topic, data, method, and findings with the Jiang et al (2022) paper.

Reply 1:

Thank you for giving us the opportunity to better differentiate our paper form prior work. Our study differs from the Jiang et al paper in two main aspects. First, Jiang et al had a smaller sample of hospitals; 3,558 general acute care facilities compared to our sample of 4,910. Second, our compliance outcome measure was more comprehensive in that we examined both whether a hospital posted a machine readable file and whether it made a price estimator tool available, since hospitals can fulfill requirements either way. We describe the compliance measure we used in Section **2.2 Outcome Measures**.

Changes in text 1:

We referenced Jiang et al. (2022) in the manuscript Section **1.2 Rationale and knowledge gap**.

Reviewer B

Comment 1:

This is an interesting study that evaluates the compliance of hospitals in the U.S. with the price transparency rule. I have several comments:

The authors did not cite the work of Jiang et al. (2022) on this topic. The findings in this paper are mostly consistent with those by Jiang and colleagues. That said, if I understand the ZeaMed data correctly, this paper differs from the earlier one

in that the compliance measure (Line 151) takes into account all CMS' requirements about disclosure, while the Jiang paper only looked at whether a hospital posted a file with negotiated prices. Readers would benefit from some discussion that contrasts this work with the Jiang paper: Jiang JX, Polsky D, Littlejohn J, Wang Y, Zare H, Bai G. Factors Associated with Compliance to the Hospital Price Transparency Final Rule: a National Landscape Study. J Gen Intern Med. 2022 Nov;37(14):3577-3584. doi: 10.1007/s11606-021-07237-y. Epub 2021 Dec 13. PMID: 34902095; PMCID: PMC8667537.

Reply 1:
Thank you for mentioning the study. Jiang et al. (2022) analyzed 3,558 general acute care facilities' compliance using a more relaxed definition of compliance, whereas our study analyzed a larger hospital sample (N=4,910) with a more rigorous analysis of compliance measure as explained in Section **2.2 Outcome Measures**.

Changes in text 1:
We referenced Jiang et al. (2022) in the manuscript Section **1.2 Rationale and knowledge gap**.

Comment 2:
Related to the first point, can the authors clarify whether ZeaMed Health counts the number of services hospitals disclose (second criterion)? It is unclear on their website, but that seems like tremendous work if they do so: https://zeatool.com/status-report/604678cb6e79302b6f6c3820

Reply 2:
Interesting comment/question! Thank you for asking and drawing our attention to this aspect of pricing data. Our study did not analyze service counts. Potentially, this can be studied in the future.

ZeaMed Health has information on counts of services if pricing information from the hospital is on the "diagnosis-related group" (DRG) chargemaster MRFs (machine-readable files). Additionally, if the hospital provides a list of "shoppable services" in MRF, those counts also are available for shoppable services. However, if an online price estimator tool is provided by the hospital in place of a MRF, then *ZeaMed Health* does not have count information.

Changes in text 2:
Not applicable

Comment 3:
Regarding hospital competition (Line 161), a more commonly used and maybe better measure is HHI at the hospital referral region (HRR) level. It can be

calculated with the HRR information and number of discharges reported in the AHA data.

Reply 3:
Thank you for suggesting the usage of HHR-level HHI as a measure of market competition. We have changed the market definition used in calculating HHI from county to HHR and rerun the analysis with the new HHI variable. Instead of using the number of discharges, we used adjusted admissions to consider both inpatient and outpatient care. Our results remained the same, showing no association between market competition and hospital compliance. Various beta's, Chi-square/t- statistics, and p-values changed fractionally without altering statistical significance of findings (especially including our null finding for competition).

Changes in text 3:
In Section 2.3 we modified the text to reflect this new definition. It now reads:
"We calculated HHI for each hospital referral region (HRR) based on adjusted admissions, defined as the sum of admissions and equivalent admissions attributed to outpatient services."

Comment 4:
The authors already noted in limitations that this paper only looked at 2021 because data collection was quite labor-intensive. But it would help if they could note that CMS increased noncompliance penalty in 2022, which makes it important to examine more recent compliance.

Reply 4:
Thanks for the consideration of months-long effort. We agree with the reviewer that the increase in penalties during 2021 may have spurred more hospitals to become compliant. We have added this point to our limitations section.

Changes in text 4:
We have added the following to Section 4.2 "Study limitations":
"The 2021 increase in penalties imposed by CMS may well have motivated more hospitals to achieve compliance in more recent years."

Reviewer C
Comment 1:
The authors should be commended for their efforts to robustly evaluate hospital compliance with price transparency policies. Importantly, these authors have extended the existing literature by evaluating hospital characteristics among those who do versus do not comply with hospital price transparency policy.

Reply 1:

Thank you kindly.

Changes in text 1:
Not applicable

Comment 2:
While the data source limitations may not be able to evaluate this, I would be interested to understand if there are differences in compliance with hospitals that are rural vs. non-rural. I see the authors included critical access hospitals in their sub-analyses but there are other "types" of rural hospitals aside from CAHs.

Reply 2:
Interesting question considering that over 100 rural hospitals were closed in the past decade and nearly 600 in desperate financial conditions (please see https://ruralhospitals.chqpr.org/downloads/Rural_Hospitals_at_Risk_of_Closing.pdf). (As an aside, we hope new federal programs, such as Rural Emergency Hospital, etc., are successful in mitigating rural hospital closures).

In response to the reviewer's comment, we ran a separate analysis with a variable indicating hospitals' rural/urban location. The variable was not associated with compliance with price transparency regulations. The table below reports results of the analysis that included rural/urban location. The coefficient of urban is 0.976 with p=0.800. In light of the result and for fear that rural/urban location may be highly colinear with other variables (i.e., bed size, CAH, and sole community hospitals), we decided not to include rural/urban location in the reported analysis.

Characteristics	Odds Ratio	95% CI	P-value
Region (Ref: Western)			
Midwest	1.295	(1.073, 1.564)	**
Northeast (including DC)	1.070	(0.850, 1.347)	
Southeast	1.247	(1.026, 1.515)	*
Southwest	1.232	(0.983, 1.545)	
Bed size (Ref: Small)			
Medium and large	1.010	(0.865, 1.180)	
Urban (Ref: Rural)			
Urban area	0.976	(0.810, 1.176)	
Teaching Status (Ref: No)			

Yes	1.026	(0.767, 1.372)	
Profit/Non-profit (Ref: For-profit)			
Non-profit or public	0.806	(0.679, 0.957)	*
System Affiliation (Ref: Non-system affiliated)			
Centralized	1.150	(0.911, 1.451)	
Centralized physician/insurance health system	1.725	(1.315, 2.263)	***
Moderately centralized	1.715	(1.444, 2.036)	***
Decentralized	0.559	(0.459, 0.680)	***
Independent	0.921	(0.753, 1.126)	
Critical Access (Ref: No)			
Yes	1.452	(1.188, 1.775)	***
Sole Provider (Ref: No)			
Yes	1.349	(1.040, 1.749)	*
HHI	1.207	(0.712, 2.045)	

Note: *<0.05; **<0.01; ***<0.001
Source: from authors' analysis.

Changes in text 2:
Not applicable

Comment 3:
Additionally, I would be interested to hear from the authors and whether or not they could possibly evaluate hospital financial performance and its possible association with compliance. Given the timing under which this policy went into effect, it was and continues to be a tumultuous time for rural hospitals. I wonder if hospitals that are struggling financially struggled to expand their bandwidth to collate and report this data in compliance with the policy.

Reply 3:
An interesting comment about the relationship between hospital financial performance and compliance. The COVID-19 pandemic has had a significant impact on hospital finances. Once the pandemic's financial impact has subsided, it would be interesting to examine the relationship.

It is possible that the reviewer's observation on financial status enabling compliance could help explain our finding that membership in certain types of systems improved the chances of a hospital complying with price transparency regulations. We have updated the manuscript to incorporate this in our discussion.

Changes in text 3:
In Section 4.1, subsection "System-affiliation and Compliance with Price Transparency Regulation", we have added the following:
"Future work should seek to determine the extent to which system membership, and the financial resources it affords, affect hospitals' decisions to comply with price transparency requirements."

Comment 4:
Finally, I would recommend that the authors of this study include some discussion of the shortcomings/limitations of chargemasters and the reality that these financial data are not necessarily reflective of payments for health care services rendered.

Reply 4:
Wonderful comment. Thank you.

Changes in text 4:
We included information on consumers having perfect information (or otherwise) and using pricing information compared to medical bills and explanations of benefits (EOBs) to the final paragraph in the Section 4.1 Key Findings.