

Policy Brief - 10th July 2020

The effect of hospital cost/price on quality of care

Sara Jamalabadi, Vera Winter, Jonas Schreyögg

Key Findings

- There is no general relationship between cost/price and the quality of care.
- The relationship between cost/price and the quality of care seems to depend on the condition and specific resource utilization.
- Different countries/regions have different regulations for quality assurance (e.g., staffing regulation, mortality and morbidity-conferences, technology use, and minimum volumes), which clearly has an effect on cost and quality.

What Problem Was This Research Addressing?

Limited empirical evidence exists regarding the effect of price/price changes on hospital quality of care. Drawing upon evidence suggesting that a link exists between cost and quality appears to be fruitful because DRG prices in most countries are based on hospital cost information such that costs and prices are closely related.

This study aims to provide an overview of the existing evidence regarding how price affects the quality of care in the hospital setting. Therefore, we conduct a literature review of studies analyzing the association between price and the quality of care in hospitals. However, because few studies investigating this relationship exist and prices often rely on the costs of hospital care, we additionally provide a literature review of studies investigating the relationship between hospital cost and the quality of care.

In addition, several critical design characteristics may alter the association between cost/price and the quality of care. Therefore, it is essential to separate the results based on defined key characteristics. In this study, we assess whether the results systematically vary depending on (i) the cost/price measures used; (ii) the quality measures used; (iii) the country in which the study was conducted; (iv) the clinical condition(s) investigated; and (v) the methodological approach used, particularly the degree to which studies approximate the causal effect based on the method used to address confounding

What This Research Adds

To date, only one systematic review performed by Hussey et al. (2013) has analyzed the association between cost and the quality of care; however, some questions remain unanswered. First, their review only focuses on the association between cost measures and the quality of care; these authors do not consider price/reimbursement. Therefore, an overview of the price-quality relationship is lacking. Second, these authors exclude studies involving non-US data sources. Therefore, an overview of cross-country comparisons is lacking. Finally, an overview of whether the results differ depending on the clinical condition is lacking. This study addresses these gaps in the literature and considers studies published since 2012, substantially increasing the quantity of evidence.

Methods

Searches for literature related to the effect of hospital cost and price on the quality of care, including studies published between 1990 and March 2019, were carried out using four electronic databases, namely, PubMed, Scopus, EconLit, and ScienceDirect. On the basis of the inclusion and exclusion criteria, 22 articles were included through the systematic search (see Figure 1). In addition, 21 studies included by Hussey et al. and four initial studies investigating the 'price-quality' relationship were added to our final review (i.e., a total of 47 studies).

Project Partner:

The extracted data included the articles' title, author, year of the study, the country in which the study was conducted, samples and years of data collection, study design, clinical condition(s) investigated, types of quality measures, types of cost/price measures, methodological approach, and the direction of the association/causality between hospital cost/price and the quality of care.

The quality of care was assessed using different outcome and process indicators. The outcome indicators comprised the following five main categories: mortality, readmission, complication, composite measures, and quality of life indexes. The primary study outcome of interest was the direction and statistical significance of the reported association between the hospital cost/price and the quality of care. We evaluated the direction of the association by indicating whether the association was (significantly linear/nonlinear) positive, (significantly linear) negative, (significantly) U-shaped/inverted U-shaped, or not significant.

Research Findings

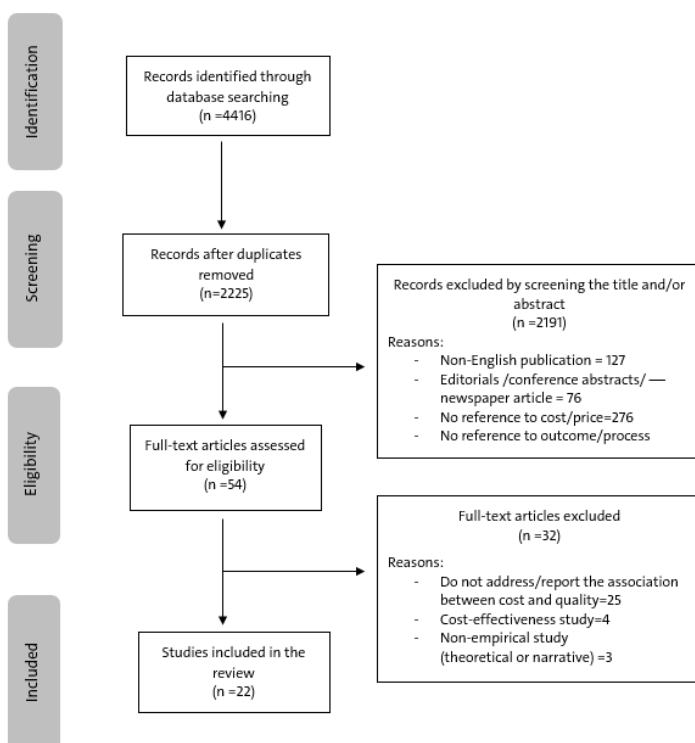
We find highly mixed evidence of the association. Overall, 74 (33%) associations between the unit cost/price and the unit quality were significantly positive, 33 (15%) associations were significantly negative, 11 (5%) associations were significantly U-shaped/inverted-U-shaped, and 105 (47%) associations were not significant.

One potential explanation is the multiple ways that price and cost can relate to the quality of care. Another explanation might be the high heterogeneity across the included studies. Most notably, the overall pattern of the relationships between hospitals' price-quality and cost-quality were quite similar. Indeed, some variations can be explained by the studies' characteristics. In particular, we find that the proportion of studies that detected a significantly positive association is higher when a) price/reimbursement is used (instead of cost); b) process measures are used (instead of outcome measures); c) the focus is on AMI, CHF, and stroke patients (instead of patients with other clinical conditions or all patients); and d) the methodological approach used to address confounding is more sophisticated.

Policy Relevance of Research

- Policymakers should be prudent with the measures used to reduce hospital costs to avoid endangering the quality of care, especially in resource-sensitive settings.
- Estimates of the cost-quality relationship and mapping that relationship to area / hospital/ health care system characteristics could aid the identification of cost-effective strategies for quality improvement.
- Given that we observed the cost-quality relationship could be non-linear (i.e., U-shaped), we therefore recommend considering the position hospitals on the curve. The position could influence the findings and affects further decisions on a specific quality improvement strategy.

Figure 1. Flow diagram of the literature search



References

Jamalabadi S, Winter V & Schreyögg J (2020) A Systematic Review of the Association Between Hospital Cost/price and the Quality of Care. *Applied Health Economics and Health Policy*, <https://link.springer.com/article/10.1007/s40258-020-00577-6>

Hussey, P. S., Wertheimer, S., & Mehrotra, A. (2013) The association between health care quality and cost: a systematic review. *Annals of Internal Medicine*, 158(1), 27-34.

Acknowledgements

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 721402.

