Reviewer’s report

Title: Factors influencing hospital high length of stay

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Reviewer: Stefan Felder

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General remarks:

The paper is not very novel. Even the authors have published several papers on the subject. The reader wonders what is new.

Many DRG reimbursement systems, as for instance the German G-DRG system, explicitly include outliers: if a patient’s length of stay exceeds the given trim point, the flat DRG payment is complemented by an additional payment connected to the actual length of stay. Such a coinsurance system will also have an effect on the number of outliers. Thus, one would like to know whether such an arrangement is also present in the Portuguese DRG system.

The normative implication of the findings should be discussed. The authors tend to assume that more money is warranted for the outliers. If the cost calculation for individual DRGs include the treatment cost of outliers, this will not necessarily be true. Only if we knew that without special reimbursement of outliers adverse effects to patients prevail (early discharge, unwarranted referrals etc.) could there be a need for additional money. I would like to see a discussion of these issues.

Methods:

The authors use the type of hospital as one explanatory variable for the share of outliers. I would advise to take advantage of the Panel structure of the model, i.e. for every hospital many different observations are available, and to apply a fixed-effects model which would allow them to take into account the heterogeneity of hospitals even further.

One would like to know the variance of outliers at the level of hospitals. This would be informative to the question whether coinsurance between the hospitals and the payers is needed. If the variance is low, due to the law of the great number, the case for additional coverage of outlier costs is not strong. Otherwise one might have an argument.

Title:

„Hospital high length of stay“ is, to my knowledge, not a well introduced term. I would prefer to see “hospital outlier length of stay” in the title.

Level of interest: An article of limited interest
Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests' below.