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## **Letter to editor: OPCAB Surgery is cost-effective for elderly patients**

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## LETTER TO THE EDITOR

**OPCAB Surgery is cost-effective for elderly patients**

Dear Dr. Gjesdal

Thank you for forwarding the letter by Wagner and colleagues about our paper regarding cost-effectiveness of off-pump and on-pump bypass in the June 2013 issue of the Scandinavian Cardiovascular Journal (1).

We would like to thank the letter writers for their interest in the study and to congratulate them on the similar study that they have published with data from the VA ROOBY trial (2).

We disagree with the main comment regarding the interpretation of the results. The argument that our conclusion about cost-effectiveness is wrong because the results are not statistically significant is controversial and not universally accepted by health economists. Several arguments have been put forth against the use of formal hypothesis testing of cost and cost-effectiveness data. One argument is that the total costs are composed not only of measured costs but also estimated costs. As an example the cost of a stay in a ward at a hospital includes a component of rent and cleaning costs that can only be estimated. Thus, costs are not exact. Costs are per definition estimates. Secondly, most often, as in the cases of the VA ROOBY and DOORS studies, clinical trials are not powered with the cost-effectiveness study as the primary outcome measure for which reason the risk of a Type II error is likely to be reflected in the economic evaluation. Thirdly, for the decision-maker who wants to use cost-effectiveness data, the difference between the two sample means remains the best estimate of effect difference rather than zero (whether this is statistically significant or not). Fourth, in economic decision making, a p value of 0.05 is not universally accepted as a threshold and a decision-maker may be willing to accept a higher risk of inappropriately rejecting a null hypothesis. A good overview of these discussions has been given by Drummond and coworkers (3).

As a consequence of these methodological and statistical difficulties most health economists favor a Bayesian rather than a stochastic analysis paradigm.

This type of analysis focuses on the probability of one treatment modality being more cost-effective than the other, taking into account the societal willingness to pay. In this context this is seen as a valid alternative to formal testing of a null hypothesis. We have presented these data in the paper in Figure 3. We base our conclusion, that off-pump surgery is more cost-effective, on the very high ICER base-case point estimate (6,829,999 D.kr./QALY) and on the 89% probability of off-pump being cost-effective at a threshold value similar to UK NICE guidelines.

In response to the two minor questions:

1. The letter writers have correctly spotted a typing error regarding the costs given in Table IIb, as stated in the text of the "results" section of the paper, they are mean values, not median values.
2. The relatively few conversions from on-pump to off-pump surgery tended to be less costly than the mean of the originally planned operations. One reason was the lower costs of hardware like stabilizers and intracoronary shunts compared to tubes, oxygenators, and filters. This may, of course, be different in other institutions.

Sincerely

*Kim Houliind*

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