Reviewer’s report

Title: Copula based prediction models: An application to the aortic regurgitation study.

Version: 1 Date: 2 January 2007

Reviewer: Eric Lim

Reviewer’s report:

General

Thank you for the opportunity to review this manuscript which presents an interesting approach by using Archimedean copulas as a predictive tool with postoperative ejection fraction after aortic valve surgery as a model.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. The most important comment I would make is that the use of Archimedean copulas introduce a high level of complexity with little meaningful advance in terms of precision and accuracy. The authors have not convincingly presented any good argument why should researchers consider using this approach rather than conventional regression.

2. Conventionally, when proposing a developmental model, researchers use a dataset to develop a model and validate (quantify accuracy and prediction) the model in a different dataset. Attempting to calibrate data on which a model is derived results in artificially high values of discrimination.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. Some postoperative ejection fractions are disconcerting, values in the region of 17% are not usually compatible with normal life.

2. The authors have attempted to quantify accuracy and precision on a 20 patient series, but you will appreciate that the variance of the data is high, the mean postoperative ejection fraction was reported as 0.3955 with a SD of 0.1436.

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Discretionary Revisions (which the author can choose to ignore)

What next?: Reject because too small an advance to publish

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests