Reviewer's report

Title: Improved risk adjustment for surveillance of healthcare-associated bloodstream infections: a retrospective cohort study

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Reviewer: Alison Holmes

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Major Compulsory Revision

1. The authors have rightly recognized the difficulties of comparing bacteraemia rates between hospitals and the need for rates that have been adjusted for type of hospital, case-mix, underlying disease, etc. and can be used for comparative purposes.

2. The authors attempt to circumvent these difficulties by providing a paper where the main interest is the statistical methods used to adjust rates by specialty, with little clinical output or interest. Exactly how these methods would be used in a clinical setting is not clear nor the practical implications of their findings. The methodological aspects of the paper are probably beyond the interest of the reader of the 'BMC Infectious Diseases'. The methods section is nearly half of the paper, and the results and discussion sections give only explanation of the statistical techniques used. The language used throughout the paper is very technical and often difficult to follow.

4. In addition, there are several issues about the infection aspects of this paper:

4.1 There are no case definitions. Are "monthly counts" the number of bloodstream infections per month?

4.2 The dataset and data collection are inadequately described.

4.3 Could the exclusion of hospitals and specialties have biased their results? What about the missing outcomes? Are they from the same hospital, same specialty, etc?

4.4 The risk score (Table 5) needs some explanation in the Methods and some comments in the Results. The comments about Figures 1 and 2 are in the Discussion but should be in the Results.

5. Overall, this paper is too methodological for this journal and, even if accepted, it would need major amendments and checking of the statistical techniques before making any conclusions or, indeed, before authorities penalise hospitals with apparently high rates. It is probably more suitable for publication in a journal that is more methodologically orientated, perhaps the 'Epidemiologic Perspectives & Innovations' published by BioMed Central.