**Author's response to reviews**

**Title:** Prevalence and acquisition of MRSA amongst patients admitted to a tertiary-care hospital in Brazil

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**Version:** 2  **Date:** 8 June 2010

**Author's response to reviews:** see over
Dear Ms Roxane Rajabi

We are submitting the revised manuscript, with modifications suggested by the reviewers. These additions or corrections are underlined in the text. The following are answers to reviewers’ comments.

Referee 1: Mrs. Anette Loeffler
1. The information about hospital was added
2. Age and previous hospitalization were significant in the multivariate analysis
3. We changed the text
4. The decision of implementation of MRSA screening within 72 h after admission was in accordance to the recommendations of the Brazilian National Health Regulatory Agency.
5. We made changes to make it clear what kind of information was collected from medical personnel (if a particular patient at emergency department was supposed to be admitted to a bed, and diagnosis), and from patient or responsible (questions in the form)
6. OK
7. Yes – we clarified that in the methods
8. This was a suggestion also made by referee 3, and we discussed in our group. We agree with Barros & Hirakata (Alternatives for logistic regression in crosssectional studies: an empirical comparison of models that directly estimate the prevalence ratio. BMC Med Res Methodol 2003, 3:21) that the analysis for a binomial outcome in a prospective study could be made with Poisson regression (as we did before) or, better, with log-binomial regression. So, we analyzed again the data using log-binomial regression, and presented this in the paper, including the reference of the article. The small differences in the confidence intervals, from the first analysis, are due to withdrawal of patients that have been selected twice (readmissions – 17 patients). Just one of these patients (a child) has
acquired MRSA in the readmission, so the number of colonized/infected patients changed only in one.

9. We changed the paragraph, but we think this is a real concern in our country and also in our hospital: overcrowded emergency rooms, were people stay for a long time in unsuitable conditions that difficult implementation of infection control policies.

10. OK, we have made adjustments.

11. In page 4, third paragraph.

12. OK

13. We rewrite the sentence to make it clearer.

14. OK

15. We corrected all the numbers

16. OK

17. We obtained this information at the corporate database of our hospital. We have risk classification for all patients that arrive in the emergency, and the information is presented day-by-day.

18. We present more detailed information in Microbiologic Methods

19. OK. We used data from studies in USA that presented admission prevalence. We thought that data from places without a widespread screening policy could be closer to our reality.

20. OK

21. Corrected

22. OK

23. OK

24. OK

25. OK

26. Corrected

27. OK

28. OK

29. OK

30. No change.

31. We rewrite the sentence

32. We rewrite the conclusion

33. OK
Referee 2: Mr. Jan A. Kluytmans

1. We really have found a great prevalence at admission. We did not look for the results of cultures in our patients in a time before the start of the study (we checked the lab database from the beginning date), just after that in order to obtain positive results (if this was the case) for the admission included in the study. However, within the patients that have had readmissions, none had positive cultures in the period. Also, until recently, we did not use to flag our patients, but now we make this for patients infected/colonized with carbapenem-resistant *Acinetobacter* sp. We clarified in the microbiology methods how we processed the specimens collected.

2. OK

Referee 3: Mr. Ben Cooper

Major compulsory revisions:

As we presented a answer to Mrs Loeffler, for our analysis of risk factors at admission, we agree with Barrros & Hirakata ([Alternatives for logistic regression in crosssectional studies: an empirical comparison of models that directly estimate the prevalence ratio](BMC Med Res Methodol 2003, 3:21)) that the analysis for a binomial outcome in a prospective study could be made with Poisson regression (as we did before) or, better, with log-binomial regression. So, we analyzed again the data using log-binomial regression, and presented this in the paper, including the reference of the article. The small differences in the confidence intervals, from the first analysis, are due to withdrawal of patients that have been selected twice (readmissions – 17 patients). Just one of these patients (a child) has acquired MRSA in the readmission, so the number of colonized/infected patients changed only in one.

The suggestion to use the method of competing risk models for the multivariate analysis seems a very attractive suggestion facing its advantages over the standard survival analysis, as pointed in the reference provided, and other two that we could read. However, our study has a limited sample size for the analysis of incidence, and, as we stated, we performed a pragmatic study in which the primary objective was to characterize the incidence of colonization by MRSA in an environment with high endemic levels and lack of resources that enable the realization of a comprehensive
strategy of universal MRSA screening or even a targeted approach. Thus, the study did not anticipate a comprehensive collection of variables allowing the characterization of all major risk factors for MRSA colonization, which makes use of a model of competing risks not feasible. Although this could be a limitation, we don’t believe that this fact invalidates the results of the study.

Minor essentials revisions
1. OK
2. OK
3. We rewrite the sentence
4. We rewrite the paragraph
5. We included the explanation in the Methods section
6. After HBS had made the list of patients, she numbered the patients and asked for a secretary to randomly select the patients.
7. OK
8. OK. Actually, standardized was for weighted – we corrected
9. We rewrite the sentence
10. OK

Discretionary revisions
1. None at all.
2. Yes, we agree. But we do not intend to say that is a risk factor, but that the long sojourn in an inappropriate environment may increase the transmission to other patients
3. Corrected

We wish to thank the reviewers for their comments that contributed to improve the quality of our paper, and we hope the corrections and adjustments could make the manuscript suitable for publication.

Sincerely
Helena Barreto dos Santos