Reviewer's report

Title: An outbreak of multidrug-resistant Acinetobacter baumannii associated with bronchofiberscopy in an intensive care unit in Beijing, China

Version: 2 Date: 15 August 2012

Reviewer: Anke Kohlenberg

Reviewer's report:

Major comments
1. Methods / results / discussion section. It does not become clear, how the authors reached the main conclusion of the manuscript that the outbreak was related to bronchoscopy. In my opinion the main reason for this conclusion was not the case-control study, but the temporal association between bronchoscopy and culture positivity for MDR-Ab, the detection of MDR-Ab on the bronchoscope and the evidence of faulty cleaning. Only few risk factors are presented as results of the case-control study in Table II and no multivariable analysis could be performed, therefore it is not possible to draw any firm conclusions from this study. In addition, evidence is missing in the manuscript such as a detailed list of results of the environmental cultures and the number of patients who received bronchoscopy during the outbreak period.

To enable the reader to understand the main conclusion of the manuscript, please

- Include the duration of the observation period of risk factors for the case-control study. Were data on risk factors in cases and controls collected for the complete ICU stay or for a limited interval like for example one week? Were all risk factors determined for the period before detection of MDR-Ab or also afterwards (for example was septic shock only a risk factor or could it also be a consequence of MDR-Ab?) How was ICU and hospital stay defined, stay until detection of MDR-Ab or stay until discharge?

- Only the results of about half of the risk factors on which data was collected according to the list in the methods section (page 7) are shown in Table II. Please include all risk factors in this table.

- Include a list of the environmental cultures with their exact sites of isolation in the ward. According to Figure 3 the outbreak strain was also isolated from common ward areas such as the medication room and nurses station, why do the authors believe it was the bronchoscope and not transmission via the hands of health care workers? Please also include the microbiological methods used for environmental sampling in the methods section.

- Include the number of patients who received bronchoscopy during the outbreak period and did not show cultures positive for MDR-Ab. If bronchoscope cleaning was faulty also other bacteria (such as P. aeruginosa) could have been transmitted, did the authors find any evidence for transmission of other bacteria?
- Include more information about the index case. The first case (patient D) with the outbreak strain in Figure 2 also became positive for MDR-Ab after bronchoscopy. Was patient D the index case who “imported” the outbreak strain into the ICU (no association to bronchoscopy) or was there an undetected index case from whom MDR-Ab was transmitted via bronchoscopy to patient D? How did the outbreak strain enter the ICU and were there any cases in other wards of the hospital?

- State clearly in the beginning of the discussion section, how the main conclusion was reached and all evidence in support or against it. Please mention that different risk factors were significant in the univariate analysis and not only bronchoscopy and that the outbreak strain was not only isolated from the bronchoscope.

- Rephrase the abstract because it puts too much emphasis on the case-control study which did not contribute much to solve the outbreak.

2. All sections. Please use the checklist of the ORION statement (for example available at http://jac.oxfordjournals.org/content/59/5/833.full) to make sure that the outbreak is reported according to current guidelines for transparent reporting. For example, this guideline asks for description of the objective of the investigation in the introduction (item 5), the number of patients admitted during the study period (item 7) and details of environmental sampling (item 10).

Minor comments

3. Methods section, page 8. Please include the information when the interventions were implemented so that their effect on outbreak control could be judged.

4. Results section, Figure 1. Table 1, Figure 2 and the text state that there were seven cases with the outbreak strain of MDR-Ab, but the epidemic curve shows only six cases.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**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.