Author’s response to reviews

Title: Prevalence of carbapenem-resistant Acinetobacter baumannii from 2005 to 2016 in Switzerland

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Prevalence of carbapenem-resistant Acinetobacter baumannii from 2005 to 2016 in Switzerland
Alban Ramette; Andreas Kronenberg BMC Infectious Diseases

Dear Prof. Higgins,

We addressed all remaining points, especially how ACB and non-ACB were identified and about the clarification of species identification, which we inadvertently omitted in our previous rebuttal letter. We modified the text accordingly as indicated in blue font in the revised manuscript. Our answers to your comments are detailed below.

Editor’s comments

Abstract. The use of the word "strain" suggests that some typing methodology has been performed. Please re-phrase this sentence to "We describe the prevalence of invasive carbapenem-resistant Acinetobacter spp. isolated ……" And throughout avoid using "strain" when you mean "spp."
Authors’ answers: We replaced the word "strain" in the abstract as suggested, and replaced by "spp. " or "isolates", as needed in the remainder of the manuscript.

"…diverse pool of A. baumannii related species…” is misleading. Same genus as A. baumannii but I would only consider the Acb group to be closely related.

Authors’ answers: We removed the word "related" as suggested.

Similarly there is no species confirmation, so it is not correct to say carbapenem-resistant ACB. Within the discussion you can bring up the likelihood, but in the abstract it should be avoided.

Authors’ answers: We have species confirmation for a large number of cases in our study because 485 of 632 (76.7%) of the isolates were characterized at the species level (see Table 1). This information has now been added in the footnote of Table 1. On the basis of the species identified, we feel confident that we can conclude from the data analysed that the majority of carbapenem resistance occurred among species that belonged to the ACB in Switzerland from 2005 to 2016. We hope that this point is also convincing from the Editor’s perspective. Otherwise, please let us know.

Page 4. I agree that at the phenotypic level there is difficulty, but at the genomic level there should be no such difficulties if one uses the correct tools.

Authors’ answers: …We changed the text by removing "genomic levels" in the sentence and now the sentence reads "Generally, these four species are not well differentiated at the phenotypic level".

Results section; One of the reviewers asked specifically about what methodology was used to identify the isolates, but this was not given in the rebuttal. I would also like to know how you determined there were ACB and non-ACB isolates. This is important information because many
studies use inappropriate methods for identification of these organisms and draw conclusions that are often repeated but unsubstantiated. In all likelihood carbapenem-resistance was found mostly in A. baumannii, but it can and has been found in many other Acinetobacter spp, many of which are not part of the ACB Group.

Authors’ answers: Sorry for having forgotten the important point in our rebuttal. We agree with the reviewer’s concern that before introduction of MALDI-TOF in 2011, when identification of Acinetobacter at species level was based on standard microbiological tests only, misclassifications within Acinetobacter spp. could not be completely ruled out. This is why we analyzed the ACB complex together, because our data analysis spanned a large timeframe from 2005 to 2016, when different methods could have been used. From 2011 onwards, however, we are confident that species identification had correctly been done by the accredited microbiological laboratories. In addition analyzing ACB complex only and all Acinetobacter spp. together did not reveal different results in our study. As we do not have access to the cultures for those isolates, we are not able to perform the MALDI -TOF-based identification again for all isolates. However the reported conclusions were very robust as demonstrated by our sensitivity analyses, and minor changes in species identification are not expected to change the conclusions of the study.

Incidently, ACB Group should also include Acinetobacter seifertii and Acinetobacter dijkshoorniae.

Authors’ answers: In the presentation of the ACB species (Background, page 4) we now also mention A. seifertii and A. dijkshoorniae. Noticeably, the taxonomy and species description within Acinetobacter spp. has changed rapidly in the meantime with 57 different species being described (http://apps.szu.cz/anemec/Classification.pdf). In Table 1, we only listed those species that were isolated in invasive samples. Therefore newer species such as A. dijkshoorniae, which was described in 2016, are not listed in our table, because they were never reported.

We hope that the modifications of our revised manuscript make it worth publishing in the Journal. Thank you for your suggestions.