Author's response to reviews

Title: Effects of Type and Level of Training on Variation in Physician Knowledge in the Use and Acquisition of Blood Cultures: A Cross Sectional Survey

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Author's response to reviews: see over
Dear Editor:

My co-authors and I are pleased to resubmit our manuscript “Effects of Type and Level of Training on Variation in Physician Knowledge in Use and Acquisition of Blood Cultures: A Cross Sectional Survey” (MS # 1362539910647523) to BMC Infectious Diseases. The reviewer raised excellent points, which we have taken into consideration. Please see the attached enclosures: (1) Amended manuscript, (2) Our response to the reviewers’ comments (below). We believe that the amendments to the original manuscript, in conjunction with our response to the reviewer’s comments address the issues raised by the reviewer. We are grateful for his insights and believe that the re-submitted manuscript is stronger as a result.

Also, please note that this manuscript resubmission is returned before the 5 August 2005 deadline stipulated by the assistant Editor, Sally Dennison, Ph.D. in her 15 July 2005 email to us.

Please let me know if you need any additional information or materials. Thank you.

Sincerely,

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RESPONSE TO REVIEWER’S COMMENTS

Overview

We are happy to resubmit our manuscript: “Effects of Type and Level of Training on Variation in Physician Knowledge in Use and Acquisition of Blood Cultures: A Cross Sectional Survey” (MS # 1362539910647523). The reviewer raised excellent points that we have worked to adequately address in both this response letter and the amended manuscript.

The reviewer indicated that no major compulsory revisions were required, but mentions five minor essential revisions and one discretionary revision.

Specific Response to Reviewer’s Comments

Starting at the end, with the discretionary revision, we thank the reviewer for suggesting that “A” be added to “A Cross Sectional Survey” in the title of the manuscript. The deleted “A” was a typo (as reflected in its inclusion in all other mentions of the title of the manuscript, as in the original cover letter, etc.). In fact, we always intended to include it in the title. Please find the “A” included in the current title of the resubmitted manuscript, and again we thank the reviewer for pointing out the omission.

The first of the minor essential revisions that we were requested to address focused on issues of variable yields of blood cultures depending on the underlying clinical setting or infection (i.e., infections associated with high grade bacteraemia such as endocarditis/endovascular infection or septic shock would be much more likely to have positive blood cultures than cellulitis or pneumonia). We concur that the manuscript would be strengthened by the addition of this point to the background. In response we have added the following two sentences to the second paragraph of the background:

“Bacteria enter the bloodstream indirectly via the lymphatic system with extravascular infections and directly with intravascular infections, and may present as transient (as with procedures or manipulation of infected tissues or mucosal surfaces or as with meningitis, osteomyelitis or pneumonia), intermittent (as with an undrained abscess) or continuous (as with endocarditis and endovascular infections) bacteremia. Thus, the yield of blood cultures are related to the underlying infectious process and may be of limited utility at times”

We have also modified the second sentence of the third paragraph of the background to read as follows (italicized words were added).

“Blood cultures are a highly user-dependent diagnostic test. Optimal BCX yield - highest sensitivity and highest specificity - critically depends not only on the nature of underlying infectious process, but also on technique and timing of specimen acquisition.”

The second suggestion made by the reviewer is that we re-examine the use of reference number 10, and consider citing a standard textbook on this point. We concur and have deleted the old citation for reference number 10 and substituted it with a new citation for the same reference number. We now cite a leading infectious diseases textbook (Mandell: Principles and Practice of Infectious Diseases, 5th ed., Copyright © 2000 Churchill Livingstone, Inc. in place of Garcia-de-
Lomas article in the journal Pediatric Infectious Diseases). In addition, we have made a minor edit to the sentence that is cited, which now reads as follows (italicized words were added).

“However, clinical management of infectious diseases depends on the accurate identification of the causal microorganism and its antimicrobial susceptibility, unusual organisms may be identified that may not be adequately treated by routine empirical coverage.”

The third query of the reviewer concerns the citation of reference 16 in the third sentence of the fourth paragraph of the background. He suggests this might be a typo as reference 15 speaks to the issue at hand (cost of contaminated blood cultures) while reference 16 is about tincture of iodine versus iodophors and rates of contaminant blood cultures. Once again, we would like to thank the reviewer for his attention to detail. This is a typo, and we apologize for the citation error. In the resubmitted version of the manuscript this sentence now correctly lists reference 15 as the correct citation.

The fourth concern of the reviewer focuses on a potential selection bias, and suggests that information about the study participants – or more specifically, about those who did not participate or return their surveys should be included in the results section and discussed in the discussion. We fully concur this is important, and take this opportunity to point out that we had already recognized this in the fifth paragraph of the discussion section as a study limitation in our original manuscript. There it reads:

“Finally, the survey was administered to a convenience sample primarily captured at conferences of target services, and unfortunately the participant response rates are unknown. We recognize the potential bias that may be associated with selective sampling of responders, and while we are encouraged by the strength of our findings, expanded meticulous surveying at multiple centers are needed to confirm these findings.”

The current version of the resubmitted manuscript continues to contain the above text. However, in order to make this point more forcefully, in addition to keeping the text found in the “limitations paragraph” of discussion section as mentioned above, we have added the following text to the manuscript (italicized words were added):

“Survey participation was voluntary and anonymous and the number of persons who did not complete or return the study is unknown.”

This italicized addition is found in the third sentence of the eighth paragraph of the methods section. We believe this is not inappropriate and reads better as an addition to this sentence/section describing data collection than it would elsewhere in the manuscript.

[Alternatively, the following text could be added to the first sentence of the first paragraph of the results section (italicized words added): “Two hundred and ninety respondents met inclusion criteria and appropriately completed the survey, but the exact number of persons who did not complete or return the study is unknown. – The current version of the resubmitted manuscript has the addition to the methods section as described above, but if the reviewer feels strongly that such a clarification must be in the results section, we query if the alternative edit would be acceptable].
The **fifth** and final suggestion of the reviewer is that we briefly describe the seven questions that most contributed to score variability, as the Appendix containing the full survey instrument might not be accessed by many readers. In response we added the following text to the end of the third paragraph of the discussion section:

“The questions focused on the timing of specimen acquisition with regard to symptoms, number of cultures, and volume of blood for optimal blood culture yield, as well querying the respondents’ understanding of the underlying infectious processes’ likelihood of producing high grade bacteremia (i.e., endovascular infections versus pneumonia or cellulitis) and when most blood cultures convert from negative to positive.”

Final note: No text was cut or other changes were made to in this resubmitted manuscript.