Reviewer’s report

Title: Physicians’ knowledge, attitudes and perceptions concerning antibiotic resistance: a survey in a Ghanaian tertiary care hospital

Version: 0 Date: 09 Feb 2017

Reviewer: Kamala Thriemer

Reviewer’s report:

Introduction:

1. "Several KAP surveys on antimicrobial resistance have been conducted among physicians in community settings[8][9][10][11]."

Some of the studies you are citing are looking at medical students and not physicians. So better to clarify this

2. "In Africa, KAP studies on antibiotic resistance are rare[18][19]."
   Please add reference 32 here

3. "Most surveys that have assessed KAP of physicians on antibiotic résistance were single factor analyses. To the best of our knowledge, only one study has conducted multifactor analysis to investigate factors that affect physicians' KAP on antibiotic resistance[20]."

   * Please use English terminology instead of French for the term resistance.

   * Also it would be better to use the terms univariate and multivariate analyses instead of single factors and multifactorial analysis

Methods:

4. In the section "study population" it might be worthwhile to mention that physicians of all levels of expertise and training were considered. This becomes clear later in the manuscript but is not clear from this section.

5. The survey instrument covers questions on perception/attitudes and knowledge but nothing on practice according to the descriptions in the "survey instrument" section. So it's not really a KAP survey but rather a KA survey. It might be worth to mention somewhere why this wasn't included.

6. I highly recommend to add the survey instrument into the appendix.
7. The description for the third cluster of questions is unclear and varies between the method section and the results section. Are those questions about the perceptions of causes for antibiotic resistance or about the knowledge of causes? Please clarify throughout the manuscript.

8. "Questions on knowledge and perceptions of antibiotic resistance used 3- to 4-point Likert-style response options from very important to not important."

I assume this refers to question about perception only not about knowledge? How can knowledge be tested in a Likert scale?

9. In the section "survey administration: you state that data collection was done during post ward round meetings. How did the investigators ensure respondents filled out the questionnaires alone and didn't collaborate with other co-workers? Doing this in a group setting, I see a risk for contamination of the data.

10. "Data was entered using Microsoft excel 2013 version and analyzed with statistical package for social sciences (IBM SPSS version 21) for analysis". Please revise the sentence and remove for analysis at the end of the sentence.

11. "Correlations between antibiotic use and knowledge patterns were analyzed using chi-Square trends". You didn't mention where data for antibiotic use was collected nor did you present this data in the result section.

12. "Variables with statistical significance at P<0.05 were incorporated into a multivariate logistic regression modeling to identify independent factors regarding physicians KAP towards antibiotic resistance that are associated with being a senior or junior physician"

You have to define better what outcome you are looking at in your model.

Results

13. "The survey was completed by 159 of 200 physicians (response rate of 79.5%) from 4 specialties."

* In the methods section "study population" you mentioned 171 physicians. Here 200 are mentioned. Please recheck and streamline.

* According to table 1 you have 6 specialties. Please check and streamline.

14. "After dichotomizing the 4- option level of training, 72.9% and 27.1% of the sample comprised junior and senior medical physicians respectively" Please add numerator and denominator after the % in ( ).
15. "A total of 74 respondents had >5 years practice experience, whiles 19 had practiced for 3-5 years, 6 for 1-2 years, and 60 for". Please add % in () after the number.

16. "Of physicians, 30% (n=47/156) considered antibiotic resistance a very important global problem (Table 2)."

* According to table 1 it is 30.1%. Please check and streamline

* Please just write (47/156) instead of (n=47/156) throughout the manuscript

17. "and this perception was influenced by the belief that antibiotics were used inappropriately in their departments". Please add result on perception of inappropriate AB use to the table.

18. "Perceptions on causes of antibiotic resistance" please see comment 7 and clarify whether the questions were about knowledge on causes of perception of causes for AB resistance.

19. "Knowledge of multidrug resistant bacteria of public health interest" this section should be shortened significantly. It is all covered in Figure 2. 2 -3 sentences on this should be enough!

20. "We sought to examine the physicians' knowledge of ESBL, MRSA, CRE, and VRE". The terminology here is not very clear for this set of questions throughout the manuscript. Did you ask people if they ever heard of ESBL, MRSA etc. or if they know about it? Or did you ask them to define what it is with multiple choice answers?

21. "Clinical experience versus knowledge of multidrug resistant bacteria of public health importance". Similar to the paragraph before this can be shortened considerably. Perhaps add a table with the ORs?

22. "In univariate analysis, a higher mean age of respondents was observed with senior physicians compared to their junior counterparts". Isn't this a bit of an obvious finding? Its ok to keep it in the table, but I wouldn't mention it in the text.

23. "including knowledge of CRE (OR, 2.71; 95% CI, 1.26-5.81; P=0.009), CRE (OR, 3.77, 95% CI, 1.79-7.93; P=0.001), and ESBLs (OR, 3.57, 95% CI, 1.63-7.85; P=0.001)."

Please check sentence. It should probably be "including knowledge of VRE (OR, 2.71; 95% CI, 1.26-5.81; P=0.009), CRE (OR, 3.77, 95% CI, 1.79-7.93; P=0.001), and ESBLs (OR, 3.57, 95% CI, 1.63-7.85; P=0.001)".

24. "Senior physicians were about 3 times more knowledgeable of CRE than junior physicians [adjusted Odds rations (AOR), 2.75; 95% CI, 1.18-4.93; P=0.012]." In the table the OR is 2.35. please recheck and correct.
25. "Figure 3 shows that senior physicians with CRE knowledge were significantly more likely to be younger than those with knowledge of VRE." They were not more likely to be younger, they were younger.

26. "Similarly, the "knowledge of VRE"- associated increase in mean age of senior physicians was 16.1 years (95% CI, 13.2-19.2; P=0.001)." There is no need to use "" "" around the term as long as the terminology is clarified as outlines in comment 20.

Tables and figures

27. Table 1: for the entire first part of table 1 it is not prescribed in the method section how this data was obtained. Perhaps you add a short paragraph in the method section stating that background data on prevalence, local guidelines etc was collected from xy and z.

28. Table 1: for better readability I suggest to add horizontal lines after each section. Also no need to add the 150 (100%) in each section.

29. Table 1: instead of "categories" I would rather say "level of training" or something that described the variable better.

30. Table 2: again here is some confusion what are questions about the perception and what about knowledge. I suggest dividing the table into perception and knowledge questions. The knowledge questions should be evaluated as right or wrong. The description of the variable names is not clear at all. What do you mean by "level of AB resistance" is this the perception about the importance of AB resistance? If so please state it clearly. Also in the second part of the table the variables are incompletely described with "…". The best solution might be to use the exact wording of the question how ot was in the survey instrument.

Discussion

31. " In our study, the majority of respondents answered that antibiotics were used appropriately in their units or departments." Perception of AB use has not been presented in the results section.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess
Are the conclusions drawn adequately supported by the data shown?
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