Author's response to reviews

Title: Antibiotic Surveillance on a Paediatric Intensive Care Unit: Easy attainable Strategy at low Costs and Resources

Authors:

Martin Stocker (stockermartin@mail.com)
Eduardo Ferrao (e.ferrao@rbht.nhs.uk)
Winston Banya (w.banya@rbht.nhs.uk)
Jamie Cheong (j.cheong@rbht.nhs.uk)
Duncan Macrae (d.macrae@rbht.nhs.uk)
Anke Furck (a.furck@rbht.nhs.uk)

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Author's response to reviews: see over
Dr Martin Stocker
Paediatric and Neonatal Intensive Care Unit
Children’s Hospital Lucerne
Spitalstrasse
CH-6000 Luzern 16
Switzerland

E-Mail: martin.stocker@luks.ch; stockermartin@mail.com
Mobile: +41793736719

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Dear Editor,

I greatly appreciate the possibility to submit our revised manuscript entitled "Antibiotic Surveillance on a Paediatric Intensive Care Unit: Easy attainable Strategy at low Costs and Resources" which we submit to BMC Pediatrics for consideration for publication. We thank the reviewers for their critical comments which have allowed us to improve the quality of the manuscript. We believe we have been able to fully respond to these. Please find below a point-by-point reply to each of the reviewer's specific comments.

All authors read and approved the final manuscript. All authors have contributed to preparing the manuscript. No person other than the authors listed has contributed significantly to the manuscript. The contents of this manuscript are our original work and have not been published, in whole or in part, prior to or simultaneous with our submission of the manuscript to BMC Pediatrics. The corresponding author has the right to grant on behalf of all authors and does grant on behalf of all authors, an executive licence on a worldwide basis to BMC Pediatrics. All authors declare no competing interests. There was no funding for the study. Per journal's instructions, the manuscript is submitted electronically.

Thank you for considering our manuscript for publication.

Kind regards,

Martin Stocker
First/Corresponding author
Point reply:

**Reviewer 1**

1. Details of introduction of the checklist in the PICU needs to be discussed.

This question is important due to the fact that an education in antibiotic prescribing policy together with the introduction of the checklist would be an important confounding factor. Therefore we added in the section "A checklist as a simple achievable intervention", page 6, second paragraph the following sentence:

*The checklist was introduced to the multidisciplinary team of the PICU without further education regarding antibiotic prescribing policy.*

2. How was compliance to the use of checklist monitored, use of run chart would be of use. Was the person not following the checklist approached and coached. If about 69% compliance could produce such a significant improvement then the improvement would be even more if the compliance was improved. We understand that was not the question in the study but this kind of intervention would shed light on the problems in getting more providers using checklist in an ICU setting. The result of the audit of compliance would add in understanding of the barriers to introduction of the checklist.

We agree with the statement that a higher compliance would be even more beneficial and an audit regarding compliance would be helpful. We didn't monitored strictly compliance and adherence to the intervention. Nevertheless, pharmacists working on the ward controlled at random use of the checklist and approached physicians not following the instructions. We think, a mandatory checklist in a computerised prescription system offers the best way to improve compliance and impact of the intervention. To clarify this point we added in the section "A checklist as a simple achievable intervention", page 6, second paragraph the following sentence:

*There was no strict monitor system regarding compliance and adherence to the intervention. Pharmacists working on the ward controlled at random use of the checklist and approached physicians not following the instructions.*

3. Is the checklist still in use and is being audited? If so is the improvement observed during the study is sustained?

Unfortunately, the use of the checklist is currently not audited. Therefore it's not possible to answer the question regarding sustainability. There will be soon a mandatory checklist available in our computerised prescription system. This was the result and implication of our audit.

**Reviewer 2**

1. Section of the methods and results should be reorganized. The section "A checklist as a simple achievable intervention" should be in the methods section. While it is understand that this checklist was developed after the results of baseline period were analyzed, nonetheless it would be clearer if it were placed in the methods. The authors could state that the intervention was developed between the study periods.

As requested by the reviewer, we have changed the place of the section "A checklist as a simple achievable intervention" from the results section to the methods. In the first sentence of the paragraph we have a clear statement that the checklist was created after phase I.
2. Subheaders may also help the result section: the authors could state 1) Results of baseline phase; 2) Results of intervention period.

We agree with the reviewer and we modified the result section with two subheaders "Results of phase I (baseline period)" and "Results of phase II (intervention period).

3. The authors should state which individuals in their ICU are actually prescribe antibiotics (residents, fellows, shift working physicians) and the numbers of each in each period (if different). This is so the readers understand how many unique individuals participated in the intervention. Is the intervention period later in the academic year (later in training year of residents, interns) as this may affect practice.

The group of physicians prescribing antibiotics remained unchanged in regard of number and level of expertise during both study periods (5 consultant intensivists, 9 fellow intensivists, 9 senior house officers). There isn't a high influence of the academic year in our PICU due to the fact that fellows stay usually 1-2 years starting their posts throughout the year. Senior house officers are working for 6 months on the PICU under close supervision of the fellows. To clarify this point we added in the section "Site and subjects", page 5, first paragraph:

_The group of physicians prescribing antibiotics remained unchanged in regard of number and level of expertise during both study periods: 5 consultant intensivists, 9 fellow intensivists, 9 senior house officers (Paediatrics)._ 

4. The authors should describe what other stewardship interventions were in place, in any in their hospital (education, prior authorization, ...).

As mentioned in the section "Site and subjects" there are 2 infection-focused care bundles actively practised with prospective data collection at our PICU: Care bundle for prophlaxis of catheter-related infections and the care bundle for ventilator-associated pneumonia. Both care bundles remained unchanged and there were no other stewardship interventions in place during the study phase. To add the information regarding other stewardship interventions we added the information on page 5, end of first paragraph:

_Both care bundles remained unchanged and there were no other stewardship interventions in place during the study phase._

5. In the first paragraph on page 10, the authors discuss the report by Buising et al, that the implementation of a computerised decision support system was associated with a greater improvement than with academic detailing. Buising et al computerized decision support appears to be very different from the intervention that the authors created for their study, so the comparison is unclear - the authors should clarify or delete that sentence.

We agree with the reviewer that the content of the described approach by Buising is very different. We used this article as reference to illustrate a possible benefit of computerized support. Rereading the article by Buising we agree that the conclusions are not really helpful for our approach, therefore we deleted this reference.