Author's response to reviews

Title: Effect of a multi-faceted quality improvement intervention on inappropriate antibiotic use in children with non-bloody diarrhoea admitted to district hospitals in Kenya

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Dear BMC Editors,

Effect of a multi-faceted quality improvement intervention on inappropriate antibiotic use in children with non-bloody diarrhoea admitted to district hospitals in Kenya – MS: 9646034375394982

Thank you for your feedback on our manuscript. The following are our responses to this reviewer’s comments:

“The training of Full intervention group was for 5.5 days and partial intervention group had training for 1.5 days, what were the differences in the contents of two groups?”

The contents of the training for the two groups are described in the ‘Methods’ section under ‘The intervention’: “The full intervention had several components including: the five-and-a-half day theory and practical training (ETAT+) in recommended practices...” The ‘recommended practices’ referred to in this text are mentioned in the second line of the same paragraph: “Briefly, it involved adaptation of evidence-based practices for assessing, classifying and managing childhood malaria, pneumonia, diarrhoea and dehydration, malnutrition, anaemia, meningitis, neonatal sepsis and prematurity to the local situation...” Content of the training for the partial intervention is described in the second paragraph of the same section: “A partial intervention was delivered to 'control' hospitals including: the same 1.5 days didactic training on the use of guidelines as in the full 5.5 days course...”

“Number of groups the staff (30-34 in full intervention group and 35-40 in partial intervention group) were trained?”

Numbers of different cadres of staff trained in the two groups are stated in the ‘Methods’ section under ‘The intervention’. In the intervention group: “... 30-34 hospital staff at each intervention site (in total 90 nurses, 11 medical officers and 29 clinical officers providing paediatric care referred to here as ‘clinicians’ were trained across the four hospitals)”. In the control group: “...35-40 hospital staff at each site (107 nurses, 6 medical officers and 21 clinical officers in total across the four sites)

“Number of recommended practice discussed during the training in each group?”

Recommended care practice was discussed for the childhood illnesses listed in the second sentence of ‘The intervention’ section: “Briefly, it involved adaptation of evidence-based practices for assessing, classifying and managing childhood malaria, pneumonia, diarrhoea and dehydration, malnutrition, anaemia, meningitis, neonatal sepsis and prematurity to the local
situation with development of management protocols disseminated by the Ministry of Health. Thus, training spanned a large number of recommendations. Recommendations for managing non-bloody diarrhoea alone included appropriate history-taking, assessment for shock and dehydration, classification of severity of dehydration and appropriate rehydration therapy, four key recommendations (of which one was a primary trial outcome - accuracy of intravenous fluid prescriptions).[18] The use of antibiotics for non-bloody diarrhoea was actively discouraged and represented a fifth key recommendation in this area. This management plan was summarised within the clinical protocols provided within guideline booklets for clinicians and nurses and wall charts.”

“What were the contents of face-to-face feedback?”

Face-to-face feedback was an approach to present findings of baseline and 6 monthly surveys during visits by supervisors rather than just in written formats (and is described by Nzinga et al.[23]). This is stated under ‘The intervention’: “Written and face to face feedback provided information on inappropriate antibiotic use for non-bloody diarrhoea amongst many other indicators of quality of care. Face to face feedback was provided by those undertaking supervision six-monthly, however the wider supervisory process (2-3 monthly) was not standardised tending to focus on key, hospital specific problems related to pre-identified key indicators [18] and follow up of locally developed action plans.”

“The supervision was 2-3 monthly and face-to-face feedback was 6-monthly, what was the purpose of the two supervisions and how the supervision data (information) used? What data (information) was collected in each supervision?”

We have further described face to face feedback above and distinguish it from supervision which is now described in the text as: “2-3 monthly supervision of hospitals' implementation by a paediatrician from the study team to discuss progress in guideline implementation, informed by data from surveys when available (see below), and identify local strategies for problem-solving with senior hospital staff (described by Nzinga et al.[23]).”

We hope that this revision now fully addresses the reviewer’s comments.

Yours sincerely,

Charles Opondo, on behalf of all authors.