Author's response to reviews

Title: Bacterial isolates and their antimicrobial susceptibility pattern among patients with external ocular infections at Borumeda hospital, Northeast Ethiopia

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Author's response to reviews: see over
Response to reviewer on the manuscript entitled “Bacterial isolates and their anti-microbial susceptibility pattern among patients with external ocular infections at Borumeda hospital, Northeast, Ethiopia”.

Dear reviewers,

We thank you for your dedication and help so that the manuscript will get standardized and documented properly which may demonstrate the causes of ophthalmic infections in resource limited settings particularly in Africa in general and in Ethiopia in particular. We considered all the comments very important and the following is the point by point response to your valuable comments. We here also assure that all the indicated responses are also documented in the text.

All the bests!

Reviewer: Christopher Ta

Comment 1: Overall the length of the paper is too long. Please condense the manuscript, especially in the introduction and discussion section.

Yes, this comment was well taken and we reduced the introduction part by far and the discussion part is also re-documented.

Comment 2: Please change the Methods section in the Abstract to reflect the patient selection process, i.e. patient with “external ocular infections” as written on page 7.

The method section of the abstract is re-documented.

Comment 3: Overall editorial English revision of the manuscript to improve the written English of the paper.
We made corrections on some of the editorials and we re-organized the manuscript and do take of English language errors.
Reviewer: Ialitha N prajna

Comment 1: The introduction and discussion is too long and mentions issues not related directly to the paper. The introduction mentions corneal ulcer and trachoma but there is no data on these diseases in this study. The diseases studied here mainly conjunctivitis and blepharitis will not lead to blindness.

Yes, we found these parts too long and some unnecessary points included. We re-organized both the introduction and the discussion part and also the points that explain on trachoma and corneal ulcer deleted.

Comment 2: This study does not discuss major external infection like microbial keratitis plus scleritis, canalicuilitis and other external adnexal infections. So the title may not actually reflect what is in the paper.

Major external eye infections such as keratitis, scleritis, canalicuilitis and external adnexal infections not mentioned: In the current introduction part we emphasized and documented conjunctivitis, scleritis, keratitis, blepharitis, canaliculitis and dacryocystitis and full explanation stated.

Comment 3: A major cause of conjunctivitis is viral and this study does not mention that and it presumes that all conjunctivitis are bacterial.

Bacterial versus viral conjunctivitis: We agree that viruses particularly adenoviruses are frequent causes of viral conjunctivitis. However, infective conjunctivitis with purulent discharge is mainly caused by pathogenic bacteria. Because the focus of the study was on bacterial pathogens of the eye, we did not described viral conjunctivitis in detail. However, in the current introduction we tried to introduce both bacteria and virus caused conjunctivitis. Nevertheless, the comment is well taken.
Comment 4: The criteria for a positive culture are not mentioned. This is very important because in this study states that “coagulase negative Staphylococcus” is the most common organism especially in conjunctivitis and blepharitis which might have been normal flora. I find this is a very important issue in many studies which claim that coagulase negative Staphylococcus is the number one pathogens. The laboratory reporting criteria must be looked onto very carefully.

Criteria for a positive culture: The laboratory method is summarized in the method section under “Isolation and Identification of bacterial pathogens” We used MacConkey agar (a selective culture media for Gram negative bacteria), Manitol Salt Agar (another selective culture media for S. aureus) and Chocolate agar plates (an enriched media used to isolate fastidious bacteria such as Streptococcus pneumoniae and coagulase negative Staphylococci). This is a well accepted method which is documented in many text book and literatures. We want to tell you that we were commented to reduce the laboratory method as they are standard methods which can be found in many text books by another reviewer of this manuscript. Moreover, we feel that the laboratory methods are adequately explained and documented.

Comment 5: Flouroquinolones are a very common group of antibiotics used world over in ocular infections and this major group was not tested. So it would be difficult to suggest the appropriate antibiotics for external infections.

The use of Flouroquinolones: The fluoroquinolones are a family of broad spectrum, systemic antibacterial agents that have been used widely as therapy respiratory and urinary tract infections. Some of the fluoroquinolones includes ciprofloxacin, genifloxacin, levofloxacin, moxifloxacin, norfloxacin and ofloxacin. However, in our system only ciprofloxacin is available. We used ciprofloxacin among the antimicrobial
drugs tested for drug susceptibility pattern and unable to use any other because of scarcity in the country.

Comment 6: The conclusions suggest that vancomycin can be used in these external ocular infections which might be a bit extreme. Vancomycin must be considered only for very morbid and multidrug resistant organisms.

**Vancomycin resistance:** The conclusion for the use of vancomycin as a treatment of choice is now deleted. However, the result showed high level of drug resistance for common antibiotics other than vancomycin.

Other comments: English flow is by far corrected and the references are also re-organized
Reviewer: Muthupandian Saravanan

Comment 1: In its current state, the level of English throughout your manuscript needs lots of correction, check the manuscript and refine the English language carefully.

   Level of English → This comment is accepted and we made an editorial on the language of the manuscript throughout the text.

Comment 2: Title of the manuscript need little correction – authors should delete hyphen (-) in anti-microbial and remove comma (,) after Northeast, Ethiopia.

   Title: Hyphen (-) on anti-microbial and the use of comma (,) after Northeast, Ethiopia → The comment is accepted and corrected.

Comment 3: The entire abstract should be rewritten in my observation.

   Abstract: it is reorganized as much as we can do so.

Comment 4: In the Abstract background part (line number 21-26) is too much, try to minimize it.

   Line number 21-26 commented too much → Yes; it is now reduced from a word count of 77 to 56.

Comment 5: In abstract Line no 27- methods should be rewritten, authors should include the sample size.

   The method section is reorganized and sample size, sampling method included.

Comment 6: In the Abstract (Line number 37) instead of Coagulase negative staphylococcus should write coagulase negative staphylococci

   Coagulase negative Staphylococcus is corrected by Coagulase negative Staphylococci.

Comment 7: Line number 41-48 in the abstract conclusion part again this is also too vast, even it contains huge information as compared to the conclusion part of the main document
Conclusion is reduced as much as possible.

**Comment 8:** Authors can start your introduction from reference no. 2. If you delete reference no. 1. nothing will be changed, because the idea in the reference no. 1 is repeated below

Reference number 1 and the idea documented is deleted.

**Comment 9:** Introduction part is too vast, better to summarize it. it will better if you show the problem worldwide, then to Africa then to your study setting instead of discussing the detail science of ocular infection.

**Introduction part too vast:** this was an important comment and fully well taken. The introduction part is edited and summarized now as much as possible → Thank you very much.

**Comment 10:** Line Number 108 -109 Study design and period rewrite it like from February to May 2014

**Study design and period** → Corrected and February to May 2014 used.

**Comment 11:** Line Number 120. The study period was 3 months with 22 working days each month. Authors No need to include this information

The study period 3 months and the 22 working days deleted from the manuscript according to your recommendation.

**Comment 12:** Line number 123. sample size determination formula is not visible

We agree with the reviewer comment. Although we have tried to use probability sampling method, the size of source populations were so small and it is not feasible to calculate sample size. Hence, we prefer to report the data by making sampling method convenient.
Comment 13: Line number 126. it will be better if you use include all that came in the study period consecutively

Better to include all patients that came in the study during the study period: Yes, these 160 patients are the only that came to the study but was also adjusted by sampling method that we mentioned.

Comment 14: Line number 132. What do you mean when you do pretest? how do you accomplish this

Pretest: self-developed questionnaire was pretested on ten study subjects at Dessie Referral Hospital eye clinic so as to assure its reliability, comprehensiveness and validity for gathering the required information from all study subjects.

Comment 15: Line number 137. Flow is not good should be rewritten. Instead of this (by swabbing the purulent conjunctivitis) you have to write (by using swab from the purulent discharge)

Flow is reorganized.

Comment 16: Line number 155. Antimicrobial susceptibility test - try to summarize your method. No need to write the details, interested peoples can refer your references

Antimicrobial susceptibility test is reduced as much as possible.

Comment 17: Line number 168. Quality control- for the questionnaire part did you do quality cheeks during and after collecting the questionnaires- Did you do quality control for your biochemical process. if yes how do you control the quality of methods in the biochemical tests? Try to include that
Quality control on questionnaires → quality of data were assured by pre-testing of questionnaires on ten study subjects in Dessie Referral Hospital eye clinic and that is documented in the text.

Quality control on Biochemical tests → was accomplished by using Known bacteria such as E.coli obtained from a reference laboratory.

Comment 18: Line number 175. The current name of this institution is Ethiopian Public health Institute (EPHI)

Ethiopia Health and Nutrition Research Institute is changed by Ethiopian public health Institute.

Comment 19: Line number 186. Ethical consideration in your result part I can see that you include study participants less than 18 years of age. However in your ethical consideration part you did have the ethical ascent (a form for the caregivers or guardian of children). This will question your study from ethical point of view. How do you manage this

Ethical issues: Yes, 8 patients were less than 18 years of age and for these groups, consent was obtained from the guardian of the child who came to the hospital together with the child and that is documented in the text now. In this study, all the specimens were collected by licensed ophthalmologists.

Comment 20: Line number 198-199. Instead of this (55.11 years with standard deviation of ± 17.85). Better to use (X, 55.11(SD, +17.85).

Mean age and standard deviation corrected.

Comment 21: Line number 313-316 in the Discussion part should be rewritten (some typos error)

Discussion part is re-organized.
Comment 22: Line number 331-332 - is this limitation is not a part of this conclusion; Authors better write it in the discussion or other parts of your manuscript.

   Limitation is documented at the end of the discussion.

Comment 23: The description of all Tables unclear and should be clearer accurate description needed.

   Tables are edited as much as possible.

Comment 24: The authors should follow the reference style as per the author guideline given in the BMC ophthalmology. Some of the references the authors not used standard Journal abbreviation.

   References organized following the instructions of BMC Ophthalmology.

Quality of English: We tried to re-organize the manuscript which we feel more improved by far.