June 11, 2024

Dr. Susane Hahne, Editor-in-Chief

Epidemiology & Infection

**Subject: Manuscript on the largest Bangladesh dengue outbreak in 2023**

**Dear Dr. Hahne,**

Please find attached our manuscript “The 2023 Fatal Dengue Outbreak in Bangladesh Highlights a Paradigm Shift of Geographical Distribution of Cases” for consideration as an “Original Paper” in *Epidemiology & Infection*.

Our article (HYG-2024-13888) was previously reviewed in **Epidemiology and Infection** (feedback received on 15 May 2024) by two reviewers and handled by the editor **Dr. Tim Wreghitt**. We have carefully reviewed the feedback provided by the two reviewers and discussed it with our co-authors. We agree that the second reviewer made several important points, particularly regarding the disconnect between the results and the discussion. However, we believe that these comments are addressable***. Thus, following the suggestions of the handling editor and reviewers, we are resubmitting the article after a significant change in the discussion and conclusion sections.***

In 2023, the world witnessed the first landmark of 6000 annual deaths due to dengue virus infection and Bangladesh recorded more than one-fourth of the total fatalities (n=1705). We worked with the Ministry of Health and Family Welfare of Bangladesh (Management Information System) on the dataset of 321,179 confirmed dengue cases and 1705 deaths to characterize the country's outbreak pattern and transmission dynamics.

In 2023, there were 1.3 times as many reported cases of dengue fever as there were in the previous 23 years, from 2000 to 2022 (321,179 vs. 244,246), and there were twice as many deaths (1705 vs. 849). Of the 1705 fatalities, 67.4% (n=1015) passed away a day after being admitted to the hospital, suggesting that individuals with serious illnesses were admitted later than necessary. We believe these findings need special attention from the authorities in Bangladesh, South/Southeast Asia, and other countries with similar economic development where medical treatment is highly dependent on large cities. This information will be also useful for WHO, CDC, ECDC, and other jurisdictions to modify/develop the guidelines for dengue infection.

In contrast to the idea of an urban disease, dengue poses a significant threat to rural communities in Bangladesh. The largest Muslim festival Eid-Al-Adha coincided with an epidemic that was ongoing in the Capital city, Dhaka. Many people (~15 million) left Dhaka and its surrounding cities to celebrate Eid-Al-Adha with their families in rural Bangladesh. This large movement probably played a role in spreading the DENV throughout the county. Our study showed the higher incidence and CFR of the district southern to the central capital city, Dhaka, and the incidence was associated with higher temperatures, urbanization, and humidity.

We have discussed the public health challenges for controlling future outbreaks of the dengue virus in Bangladesh. All authors reviewed the article and provided their consent for journal submission. We do not have any conflict of interest. This manuscript has not been published and is not under consideration for publication elsewhere.

Thank you for considering our submission.

For your convenience, I have included the details editorial decision letter below.

**Kind regards,**

Najmul Haider, PhD, MPH, MSc, DVM

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15-May-2024  
  
Dear Dr. Haider,  
  
I am writing to you about your manuscript HYG-2024-13888 entitled "The 2023 Fatal Dengue Outbreak in Bangladesh Highlights a Paradigm Shift of Geographical Distribution of Cases" which you very kindly submitted to Epidemiology and Infection for possible publication.  
  
I now have the reviews from our referees (below).  Having taken their comments into consideration, and my own careful assessment of your paper, I have regretfully to say that we will not be able to publish your manuscript in Epidemiology and Infection. ***However, as Referee #2 suggests, you may wish to re-focus your paper and re-submit it.***  
We take into account not only the quality and originality of the manuscript, but also the manuscript's likelihood to advance knowledge in the field, its potential interest to journal readers and its international appeal.  
  
If you prefer to submit elsewhere, I hope you will find our reviewers' comments helpful.  Both have read your paper in some detail and responded accordingly.  
  
Thank you for considering Epidemiology and Infection for the publication of your research.  I hope the outcome of this specific submission will not discourage you from the submission of future manuscripts to us.  
  
  
Yours sincerely,  
  
Tim  
  
Dr. Tim Wreghitt  
Associate Editor  
Epidemiology and Infection  
[chair@thebellbird.cambs.sch.uk](mailto:chair@thebellbird.cambs.sch.uk), [chair@thebellbird.cambs.sch.uk](mailto:chair@thebellbird.cambs.sch.uk)  
  
Editor Comments to Author:  
  
Reviewer(s)' Comments to Author:  
Referee: 1  
  
  
Regarding manuscript entitled “The 2023 fatal Dengue outbreak in Bangladesh highlights a paradigm shift of geographical distribution of cases”, I have the following comments:  
1. Please avoid writing in the first-person ("we").  
2. Abstract, line 11: please do not abbreviate the dates of the study period and write them in full.  
3. Meteorological data: In the period 2000 to 2022, was there any year with a total annual rainfall equal to or higher than 2023?  
4. Discussion, page 14, line 29: please rewrite to read as ". Aedes albopictus can bite...".  
5. Discussion: please define CFR the first time it appears in the text.  
6. Figure captions: standardize the identification of the time period studied.  
  
  
Referee: 2  
  
  
  
The authors report about the 2023 dengue outbreak in Bangladesh, which was significantly larger than any previous outbreak with a high number of fatalities.  
The manuscript provides important information about the size of the outbreak and the burden of severe and fatal cases. At the beginning of the discussion, the authors outline the context in which the 2023 outbreak happened, with a new serotype arriving, the monsoon timing and the amount of rain.  
However, the abstract and the results section of the paper (and there is a disconnect between this and the discussion/conclusion) seem to link the large outbreak in 2023 to climatic variables ONLY, and disregard other important factors, as for example serotype shift. This reviewer is not sure why the authors are doing this – maybe because serotype data is published separately?  
The current draft publication has important information, is well-written, but it implies that the size of the outbreak was predominantly caused by changing climate, which is likely not true. The climate was changing gradually over many years and not suddenly from 2022 to 2023.  
This is somewhat disappointing as this is a well written description of the size and the severity of the outbreak in Bangladesh. In the current format, the paper cannot be published. This reviewer votes for REJECT and urges the authors to submit a substantially revised new manuscript.  
The revised manuscript should take the approach of the discussion/conclusion with a more comprehensive description of the contributing factors of the 2023 outbreak, and talk in more detail about the shift from Dhaka to the provinces on one hand (as mentioned in the abstracta), but still with the majority of deaths in Dhaka (page 10). The point that dengue is shifting to become a threat for rural Bangladesh needs to be highlighted, as well as the potential that different background immune landscapes (by seroprevalence) between urban and rural Bangladesh partially account for the clinical phenotypes. Currently, the abstract and the results section does NOT fit the discussion and conclusion section of the paper.